THE U.S. GOVERNMENT AND THE FUTURE OF INTERNATIONAL MEDICAL RESEARCH

HEARINGS

BEFORE THE

SUBCOMMITTEE ON REORGANIZATION AND INTERNATIONAL ORGANIZATIONS

OF THE

COMMITTEE ON GOVERNMENT OPERATIONS UNITED STATES SENATE

EIGHTY-SIXTH CONGRESS

SECOND SESSION

APPENDIX ON OVERSEA MEDICAL RESEARCH AND ASSISTANCE

(PURSUANT TO S. RES. 347, 85TH CONG., S. RES. 42, AND S. RES. 255, 86TH CONG.)

PART II—EXHIBITS FROM OFFICIAL SOURCES

REPORTS, MEMORANDUMS, AND LETTERS ON AND FROM U.S. GOVERNMENT AGENCIES, INTERGOVERNMENTAL ORGANIZATIONS, AND FOREIGN NATIONS

Printed for the use of the Committee on Government Operations

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FOREWORD

By Hon. Hubert H. Humphrey, Chairman, Subcommittee on Reorganization and International Organizations

This is one of two exhibit volumes. Each is an assembly of what we believe will be useful background materials.

The purpose of part II and of its companion volume, part III, is to supplement hearings held by the Subcommittee on Reorganization and International Organizations in its international health study.

The study was originally authorized under Senate Resolution 347, 85th Congress. (For text of the resolution, see pt. I, pp. 97–98.) The study was extended under Senate Resolution 42 and Senate Resolution 255, section 4, 86th Congress.

The hearings were published as part I. That volume also included a transcript and other information compiled during our official review in Europe in November–December 1958.

Parts I, II, and III supplement the committee prints already issued by the subcommittee. For a list of these publications, see part I, pages 175–176.

Additional publications which are expected to be issued by the subcommittee are listed in part III on page 1224 ff.

Comparison Between the Volumes

Part I was concerned almost exclusively with international medical research.

Parts II and III add to such material and assemble data on international medical assistance—that is, technical aid to emerging countries.

Information is presented in the latter volumes of a type which might have been orally submitted at additional hearings, if time had permitted.

The volumes are, therefore, collections of additional evidence for the subcommittee's review. They are intended as source books. By analyzing this and other material, the subcommittee will, we believe, be in a sound position to develop useful findings for its final report and recommendations.

PART II—OFFICIAL SOURCES

Part II contains information on and from official sources. Thus, it consists of four types of data:

(*a*) By and about U.S. Government programs;
(*b*) By and about intergovernmental organizations;
(*c*) By and about the activities of foreign nations, and
(*d*) By and about activities in our States and cities.

Costwise, it may be mentioned that the programs of the U.S. Government alone in international health are expected to aggregate $130 million in the 1961 fiscal year. This is in addition to an estimated $30 million equivalent in foreign currencies.

PART III—NONOFFICIAL SOURCES AND COMBINED INDEX

Part III is devoted by and large to the work of private organizations and individuals in the medical field and in related scientific fields. There is, however, an intimate relationship between the contents of the two volumes; there are many references in each to the work of both official and private groups. They should, therefore, be viewed as a unit. The indexes in the back of part III include subjects covered in both parts II and III.

Outline Precedes Each Section

Since all of this evidence is fairly comprehensive, it is carefully organized by major categories in the form of sections. Preceding each section of the volumes is its own outline. All items referred to in the outline are indexed, as are the names of contributors and correspondents.

In order further to help assure understanding of the background and objectives of these volumes, there follows a detailed memorandum on the contents:

Memorandum on Parts II and III

The U.S. Government and International Health

Contents of these volumes have been assembled pursuant to the mission of the subcommittee.

Materials herein were compiled during the 2½-year period from—

(*a*) August 17, 1958, date of enactment of Senate Resolution 347, 85th Congress through

(*b*) January 1961.

Contents of Parts II and III

Various types of material are included in each volume:

1. Official reports, memorandums and letters from Federal agencies and official groups in States and cities (pt. II).
2. Letters from nonofficial organizations (pt. III).
3. Letters from individuals.
4. Statistical tables.
5. Charts.
6. Pertinent articles, largely from professional journals.
7. Subcommittee staff memorandums.
8. Federal statutes.

There follows a section-by-section description of the contents of the companion volumes.

SECTION A—U.S. GOVERNMENT

Section A is devoted to activities of U.S. Government agencies.

These activities cover both international medical research and international health assistance.

It will be noted that in the subcommittee's hearings, time was available only to explore problems of world research. By contrast, herein, we survey both of the major phases within our legislative authority—namely, medical research and health assistance. For example, we include a summary of the activity of the International Cooperation Administration. As was noted in the chart on page 168 in part I, ICA is the leading source of U.S. expenditures for international health. Virtually all of these expenditures are for technical assistance, as such, rather than for research.

It should also be noted that nine other U.S. agencies are engaged directly or indirectly in various types of programs involving international health.

Since the subcommittee is especially interested in how these agencies expend U.S. tax dollars, a table is presented in section A (page 321), setting forth a summary of international expenditures.

SECTION B—INTERGOVERNMENTAL ORGANIZATIONS

U.S. tax dollars are also spent, indirectly, by intergovernmental organizations of which the United States is a contributing member. For that reason, section B is devoted to an account of certain of the work of intergovernmental organizations.

These groups include not only the World Health Organization (which was the subject of our fourth committee print), but the United Nations Educational, Scientific, and Cultural Organization, the Food and Agriculture Organization and numerous regional organizations.

SECTIONS C, D, AND E—OTHER SOURCES

A natural question arises: What is the relationship in turn between—

(1) official expenditures by U.S. agencies and by multilateral organizations and

(2) funds which are being spent by a vast variety of other sources—both official and nonofficial?

Such other sources include, for example, individual foreign governments (in pt. II) and private medical and other organizations (in pt. III).

To help answer the question, succeeding sections of the volumes—sections C, D, and E—are devoted to facts on the work of these and other sources.

SECTION F—SUBCOMMITTEE ACTIVITY

Section F concludes with a description of the subcommittee's approach and its pattern of activity during these 2½ years of endeavor.

INDEXES IN PART III

At the conclusion of part III appear a series of indexes covering both volumes:

An index of names of individual correspondents and contributors to parts II and III.

An index of abbreviations.

A selected subject index.

THE BULK OF THESE VOLUMES—LETTERS

It will be noted that the bulk of these volumes, following the reports from Federal agencies, consist of individual letters. The letters were referred to in part I, pages 94–96. I regard these letters as being of immense value.

The letters have been reprinted with only the most minor revisions. Sometimes, in the case of a foreign scientist writing with difficulty in English, a technical correction has been made to help convey the intent of the message.

The only material omitted has been information of a personal, and very rarely, of a confidential nature.

Each of the correspondents was advised beforehand that the subcommittee might wish to print his or her reply, in whole or in part.

THE MOBILIZATION OF DIRECT REPLIES

This collection of correspondence is but a sampling of a much larger total within the subcommittee's file.

The grand compiled total probably represents the largest elicitation of views of international scientists ever made by a congressional subcommittee.

We went in effect to the world for the world's judgment on world health. We sought out the most authoritative spokesmen of international science and secured their views through the medium of correspondence.

In part II, for example, are found comments from 17 ministries of health abroad. In part III appear messages from (*a*) 18 winners of the Nobel Prize, (*b*) the executive secretaries of 25 international medical organizations, (*c*) the deans of 40 North American medical schools, (*d*) the executive secretaries of 18 specialized American medical organizations and from many other groups.

The subcommittee does not, of course, measure the responses from the standpoint of their numbers; rather it is the high caliber of the individual respondent and the helpful quality of his response which have always interested us.

THE BURDENS OF CORRESPONDENCE

The accumulation of this information for these and 20 or so other subcommittee publications and reference compilations has involved the preparation, acknowledgment and followup of literally thousands of letters.

And all this has been done with but a single professional aide—the project director of the study, assisted by an editor and a small stenographic-clerical force.

We believe that the results amply justify the burdens which we and our staff willingly assumed in the interest of congressional understanding.

We are deeply grateful to all our correspondents.

While we could have reprinted but one or two line extracts or brief paragraphs from their replies, we feel that reading of their views in toto provides a much clearer indication of each correspondent's own emphasis and approach.

It should be noted that the voluminous materials herein were not basically compiled for the purpose of being published in this or any other volume. They were compiled in order to be analyzed by the subcommittee for the purpose of developing findings. Each incoming letter has been studied immediately upon its arrival. Often, it has helped to stimulate our making other inquiries.

A given letter's publication at the present time within either of the two exhibit volumes is not therefore an end in itself, but rather a means to an end—understanding by our own and other committees as well as by other interested sources.

The fact that some points are made over and over again by our contributors does not lessen their value; indeed, repetition enhances value because it confirms and helps validate the opinion or conclusion.

CAREFUL ASSEMBLY OF DATA

The subcommittee sought to "digest" incoming messages carefully; it did not wish to rush into print with a limited group of incomplete exhibits. Since it delayed publication until it felt the time was ripe, some of the initially received replies inevitably became somewhat outdated. A few of the reports have been supplemented with more current data. But, by and large, we have not attempted the almost endless task of updating information. All of the reprinted data, regardless of date of receipt (1958, 1959, or 1960) is regarded as a useful reference for the future.

With the passage of time, inevitably some correspondents and contributors have left office. With but few exceptions, we report their official or private title as of the date they wrote.

VALUE OF REPRINTING LETTERS

Had we not reprinted this correspondence, we would, in effect, be developing conclusions without making available the raw material, so to speak, on which these conclusions are ultimately based. Instead, by disseminating this original material, we help our readers to determine for themselves the validity of the findings we will develop.

Our own subcommittee interest is a specialized interest. By contrast, the substantive committees which work continually on health matters, e.g., the Senate Committee on Labor and Public Welfare and the House Committee on Interstate and Foreign Commerce, may see in the material which we have compiled other points than we have seen or that we could possibly develop within our particular framework. We view ours as a service role—a service to the Senate and to other expert committees, as well as to many diverse interests in medicine and science.

The inevitable result is volumes of this bulk.

VALUE OF FULL PERSPECTIVE

Their very size confirms an important fact—service to the health of mankind is the joint responsibility of all nations and of innumerable disciplines.

No one nation can solve all health problems within its own borders, for disease is international.

No one nation can by itself carry on its shoulders the burdens of health of other peoples. Contributions from many sources and many skills are essential for this purpose.

We have however confined all of the exhibits to these two volumes rather than publish a long series of separate smaller volumes in order to help maintain full perspective for ourselves and for our readers.

PROBLEM OF COMMUNICATIONS EMERGES

A further fact is indicated by the considerable number of organizations and individuals represented in the pages which follow. The very existence of so large a number of interrelated groups inevitably brings to the fore the issue and problem of communication between these groups.

The communications problem is one of the most acute facing international biomedical science. It is especially serious as regards research. For this reason the subcommitte has made a separate compilation on the theme "The Federal Government and Biomedical Information." This compilation is devoted to problems of storage, indexing, retrieval, and dissemination of data on research.

A communications problem exists as well as regards the application of knowledge—communications between scientists and organizations in the various countries concerning on-going problems of public health.

Indeed, one of the very purposes of these volumes is to help meet this latter problem of communication by assembling a mass of useful data in two handy reference sources.

CHART ON DIVERSITY OF HEALTH ORGANIZATIONS

A panoramic view of the diverse organizations interested in international health is presented in the chart (fig. 1) which follows this foreword.

Some of the many types of organizations referred to in the chart are described in other subcommittee collections. These are of two types: (a) publications scheduled for formal issuance as committee prints or reports, (b) compilations assembled for subcommittee background reference and for consultation by other interested congressional groups. For a discussion of these two types of publications, see page 1224.

COMMITTEE'S OBJECTIVE UNDER LAW

It should be clearly noted that the subcommittee has proceeded on this premise: In order that we may make recommendations as to the future course of U.S. governmental activity, we must first determine how that activity fits in with work currently performed by other organizations.

A coordination problem inevitably develops, since so many sources are involved in medical research and assistance—American and foreign, official and nonofficial, professional and lay.

Without coordination, there can hardly be economy and efficiency. Under the Legislative Reorganization Law, "economy and efficiency" are specified to be major interests of the Committee on Government Operations.

This subcommittee does not presume to infringe in any way on matters not within our official U.S. sphere. Foreign governments have their own interest, prerogatives, and approach. Private organizations and individuals are entitled to the fullest freedom.

But, it is the subcommittee's view that if the U.S. Government is to play its optimum role with maximum economy and efficiency, facts are needed as to who else is doing what, where, why, and with what relationships to U.S. official activity.

FACTS FOR POLICY DECISION

The reports and letters within the two exhibit volumes may provide a factual framework for future policy decisions.

We hope that they will so serve not only for such decisions on the part of the U.S. Government but on the part of many other sources.

INDIVIDUAL BACKGROUND OBSERVATIONS BY CHAIRMAN

To assist in this process, as chairman of the subcommittee, I have submitted certain background observations within each volume. These observations are in no sense intended as the formal judgment of the subcommittee at this time. Instead, they are offered as an individual Senator's comments for purposes of providing some measure of perspective.

The observations indicate:

(*a*) Why particular information has been compiled and when;

(*b*) What its relationship is to other information.

Observations are submitted because I do not believe that the publication of heterogeneous facts and opinions without offering any measure of background insight would serve the most useful purpose.

More often than not, however, my observations are in the form of questions, not answers.

These questions are posed in part to the executive branch; other questions which relate to legislation, as such, may be considered in the legislative branch.

In either event, the questions asked and the material selected are not intended to imply any policy commitment on the part of other members of the subcommittee.

QUESTIONS CONFRONTING 87TH CONGRESS

As this volume goes to press, the executive branch and the 87th Congress are beginning to review many questions related to international health.

The contents of these two volumes may held provide answers to some of these questions. The following are but a few of these questions, relating to current developments. Also included are references to pages on which background data may be found.

1. The National Institutes of Health now have a new Office of International Research. Will this Office be in a position to fulfill all of the functions which had been originally contemplated for what had been proposed as a separate National Institute for International Medical Research? (For background to the Institute concept, see p. 337.)

2. Similarly, under Public Law 86–610 (p. 332) NIH has made pioneering grants to four U.S. universities to establish international centers for medical research in cooperation with foreign medical institutions. The grants largely concern problems of interest to developing areas. What, however, should be done to strengthen university-to-university ties with highly industrialized nations? For example, should ties be fostered with European universities on perhaps a regional center basis abroad?

3. Exchange programs are widely praised as an indispensable aid toward improving health standards. There is a variety of exchange programs in the life sciences (pp. 516 and 1136). Is there need for increased coordination among the programs?

4. Congress is exploring how the "northern tier" of industrialized nations can assist the emerging areas, e.g., through the newly reconstituted Organization for Economic Cooperation and Development. What can be done to strengthen OECD aid to health needs of the underdeveloped "southern tier" of nations? (See pp. 632 and 659.)

5. What should be the role in health of the new Peace Corps (p. 562)?

LETTERS MADE AVAILABLE BEFORE PUBLICATION

In conclusion, it should be noted that, long before publication of these volumes, various official sources were invited to consult their contents. (See p. 1219.)

In effect, we made the contents immediately available in what might be termed an open, "looseleaf" file. As each letter came in, it was studied, then incorporated in its appropriate place for quick reference by the subcommittee and by other interested sources. In that way, action could develop promptly, instead of awaiting formal publication.

The printing of the volumes is, therefore, not a first step, but an intermediate point in what might be considered a constructive chain reaction. Printing may further contribute, it is hoped, to achievement of the wishes of the Congress, of the American people and of men of good will everywhere. The aim is sound decisions to improve the well-being of the Family of Man.

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[1] A detailed table of contents precedes the text of each section.

FIGURE 1

EXAMPLES OF SOME OF THE WORLD'S MAJOR TYPES OF ORGANIZATIONS ACTIVE IN INTERNATIONAL HEALTH

RESEARCH AND ASSISTANCE

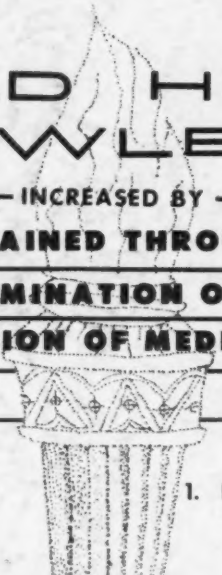
WORLD HEALTH KNOWLEDGE

— INCREASED BY —

EXPERIENCE GAINED THROUGH RESEARCH

TRAINING IN AND DISSEMINATION OF EXISTING KNOWLEDGE

APPLICATION OF MEDICAL CARE



OFFICIAL	NON-OFFICIAL
1. NATIONAL GOVERNMENTS ACTIVE IN BILATERAL AND MULTILATERAL HEALTH PROGRAMS	1. PROFESSIONAL ORGANIZATIONS NATIONAL AND INTERNATIONAL

1. NATIONAL GOVERNMENTS

ACTIVE IN BILATERAL AND MULTILATERAL HEALTH PROGRAMS

UNITED STATES
UNITED KINGDOM
FRANCE
SWEDEN, ETC.

2. INTER-GOVERNMENTAL ORGANIZATIONS

A) ACTIVE EXCLUSIVELY IN HEALTH

World Health Organization
Pan American Health Organization
United Nations Childrens Fund

B) WITH LIMITED HEALTH PROGRAMS

Food and Agriculture Organization
United Nations Education, Scientific and Cultural Organization
International Labor Organization, etc.

C) REGIONAL ORGANIZATIONS WITH LIMITED HEALTH PROGRAMS

Colombo Plan

1. PROFESSIONAL ORGANIZATIONS

NATIONAL AND INTERNATIONAL

A) MEDICAL - Council of International Organizations in Medical Sciences
World Medical Association
International Union Against Cancer
International Society of Cardiology
World Congress of Gastroenterology, etc.

B) OTHER HEALING ARTS - Dental, Nursing, Pharmaceutical and Other Organizations

C) OTHER SCIENTIFIC -
International Union of Physiological Sciences
International Union of Biological Sciences
International Union of Bio-Chemistry
International Association of Micro-Biological Societies, etc.

2. LAYMEN'S ORGANIZATIONS

A) VOLUNTARY HEALTH AND WELFARE AGENCIES -
American Cancer Society
National Foundation
International Society for Welfare of Cripples
World Rehabilitation Fund, etc.

B) CHURCH ORGANIZATIONS

C) NON-SECTARIAN AID ORGANIZATIONS -
Red Cross
"CARE"
MEDICO, etc.

B) CHURCH ORGANIZATIONS

C) NON-SECTARIAN AID ORGANIZATIONS -

Red Cross
"CARE"
MEDICO, etc.

3. PRIVATE ENTERPRISE

PHARMACEUTICAL COMPANIES

4. FOUNDATIONS AND INSTITUTES

Rockefeller Foundation
Ford Foundation
Wellcome Trust
Sloan-Kettering Institute, etc.

5. UNIVERSITIES

SCHOOLS OF MEDICINE (AND SCHOOLS OF PUBLIC HEALTH), DENTISTRY, NURSING, PHARMACY

International Health Study
Subcommittee on Reorganization and International Organizations
Committee on Government Operation
U.S. Senate August 1960

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Section A

UNITED STATES GOVERNMENT

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1. BIOMEDICAL SCIENCE AND U.S. INTERNATIONAL RELATIONS

Senator HUMPHREY. We begin this exhibit volume with one of the many fiscal analyses which we compiled. Table 1 shows that during the 1959 fiscal year, the United States spent for purposes of international health:

(*a*) $123 million and

(*b*) the equivalent of $36 million in foreign currency.

We believe that it is appropriate that a group such as ours, entitled the Subcommittee on Reorganization and International Organizations, turn first to exhibits on the foreign policy implications of these expenditures.

The Committee on Foreign Relations is, of course, the expert committee of the Senate in international relations. However, our own subcommittee of the Committee on Government Operations carries out certain responsibilities, specified in the rules of the Senate.

Committee's jurisdiction

Rule XXV, for example, prescribes that this committee shall have the duty of—

* * * * * * *

(D) studying intergovernmental relationships between the United States and the States and municipalities, and between the United States and international organizations of which the United States is a member.

The specific focus under the present study, authorized by Senate Resolution 347, 85th Congress, is, of course, international.

A. U.S. OVERSEA EXPENDITURES FOR HEALTH

One of the very first questions which concerned us, therefore, was: "Exactly how much money is the United States spending in international biomedical efforts through our bilateral and multilateral programs?" This includes: (*a*) Through direct action with specific nations, and (*b*) through intergovernmental organizations in concert with other nations.

The following table includes all such expenditures in both dollars and foreign currencies.

In order to indicate the relative magnitude of the figures involved, the table is followed by a chart (Fig. 1–1) highlighting the leading oversea expenditures.

TABLE 1

UNITED STATES SUPPORT FOR PROGRAMS IN INTERNATIONAL HEALTH

(In obligations of thousands of dollars)

	Actual, fiscal year 1959
FUNDS APPROPRIATED TO THE PRESIDENT:	
MUTUAL SECURITY—ECONOMIC:	
Special health programs:	
Malaria eradication	20,159
Community water program [1]	----------
Atoms for peace	406
Asian Economic Development Fund:	
Project "HOPE"—medical demonstration ship	100
Cholera research in SEATO countries	400
Regular country health programs:	
Technical cooperation	11,242
Defense support	3,633
Special assistance [2]	3,297
Interregional funding [3]	792
Development Loan Fund:	
Loans for water supply and sewerage [4]	21,765
U.S. escapee program:	
Regular USEP	169
World Refugee Year contribution	----------
MSP assistance to international organizations:	
To World Health Organization (WHO)	3,000
To Pan American Health Organization (PAHO)	3,000
MSP grants for community water program:	
To World Health Organization	----------
To Pan American Health Organization	----------
MSP grants for medical research to WHO [5]	----------
Contributions to:	
U.N. International Children's Fund (UNICEF)	11,000
U.N. Expanded Program of Technical Assistance (UNTA) [6]	2,177
U.N. Relief and Works Agency for Palestine Refugees (UNRWA)	1,911
Subtotal, mutual security program funding [8]	83,051
DEPARTMENT OF STATE:	
Contributions to international organizations: [6]	
World Health Organization (WHO)	4,666
Pan American Health Organization (PAHO)	1,914
International conferences:	
Meetings of WHO, PAHO, and UNICEF	41
International Educational Exchange Service (IES) [7]	1,000
Subtotal, State	7,621
Subtotal, MSP and State [8]	90,672
EXPORT-IMPORT BANK:	
Dollar health loans	5,067

See footnotes at end of table.

TABLE 1—Continued

UNITED STATES SUPPORT FOR PROGRAMS IN INTERNATIONAL HEALTH

	Actual, fiscal year 1959 (thousands)
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE:	
Public Health Service:	
National Institutes of Health [9]	6,307
Surgeon-General; Division of International Health	148
Office of Vocational Rehabilitation	78
Subtotal, HEW	6,533
DEPARTMENT OF DEFENSE:	
Department of the Air Force	2,863
Department of the Army [10]	1,308
Department of the Navy [11]	763
Mutual security military assistance programs [12]	9,300
Subtotal, DOD	14,234
DEPARTMENT OF AGRICULTURE:	
Veterinary research	477
International scientific information exchanges	77
Subtotal, Agriculture	554
DEPARTMENT OF INTERIOR:	
Trust Territory of the Pacific Islands [13]	545
DEPARTMENT OF COMMERCE:	
Bureau of Standards—radiation research	31
ATOMIC ENERGY COMMISSION:	
Biology and medicine [14]	2,172
Training, education and information	267
Topical conferences	28
Subtotal, AEC	2,467
VETERANS' ADMINISTRATION:	
Grants to the Philippines for medical care	1,250
Regional office, Manila	1,629
Subtotal, VA	2,879
NATIONAL SCIENCE FOUNDATION:	
Basic research grants and facilities	215
GRAND TOTAL, dollar programs	123,197

U.S.-OWNED AND U.S.-CONTROLLED FOREIGN CURRENCIES

(Obligations in thousands of dollar equivalents)

	1959, actual
FOREIGN CURRENCIES GENERATED BY U.S. OVERSEA PROGRAMS:	
MUTUAL SECURITY PROGRAM—ICA ADMINISTERED:	
Counterpart accounts (country-owned)	16,115
Sec. 402: sale of surplus agricultural commodities	1,950
Public Law 480, title I uses [15]	13,650
Subtotal, MSP U.S.-owned or controlled [16]	31,715
EXPORT-IMPORT BANK:	
Foreign currency loans	4,250

See footnotes at end of table.

TABLE 1—Continued

U.S.-OWNED AND U.S.-CONTROLLED FOREIGN CURRENCIES—continued

(Obligations in thousands of dollar equivalents)

SPECIAL FOREIGN CURRENCY PROGRAMS PROPOSED FOR APPROPRIATIONS:	
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE:	*1959, actual*
Public Health Service	----------
Office of Vocational Rehabilitation	----------
NATIONAL SCIENCE FOUNDATION—TRANSLATIONS	116
TOTAL, foreign currency programs	36,081

[1] In addition, portions of these funds are channeled through international agencies, WHO, PAHO, and IAEA, carried below under MSP grants to international organizations.
[2] Other than special health programs carried above.
[3] Includes Public Health Service training services, technical consultation, and support; ICA personal services in the Office of Public Health; and other interregional participant support and technical consultation.
[4] Reflects 4 loans made directly for water supply and sewerage, and amounts included for such purposes under one other DLF loan.
[5] Grant in 1958 from "Public Health Service" appropriation. This item is included in amounts shown in table H–1 for the Department of Health, Education, and Welfare, and is therefore omitted from the total in this table.
[6] Does not include the U.S. contribution to international organizations which have small amounts for health activities, e.g., the nutrition program of the U.N. Food and Agriculture Organization. UNTA estimate includes only expanded technical assistance to World Health Organizations.
[7] Estimated IES exchange grants of international health personnel.
[8] Other than military assistance health programs carried below under Department of Defense.
[9] Includes research grants and contracts to foreign nationals; interchange of scientific personnel; direct research activities outside the United States; and support of international scientific assemblies.
[10] Includes health activities in the civil administration of the Ryukyu Islands programs.
[11] Reflects only Naval Medical Research Units No. 2 and No. 3 stationed abroad.
[12] Military assistance includes medical equipment and supplies, nutritional surveys and medical training. Includes Interdepartmental Committee on Nutrition for National Defense.
[13] Grants are to government of the territory for 6 hospitals and 3 leprosaria.
[14] Primarily the Atomic Bomb Casualty Commission in Japan.
[15] Only the uses of local currencies under title I of Public Law 480 are listed. The value of commodities under titles II and III for famine relief, general charitable purposes, etc., are not included as they are inappropriate to this table.
[16] In addition, host government support for bilateral health programs includes cooperating country funds, joint fund dollars and local currencies, and other external financing, totaling about $55 million in fiscal 1959.

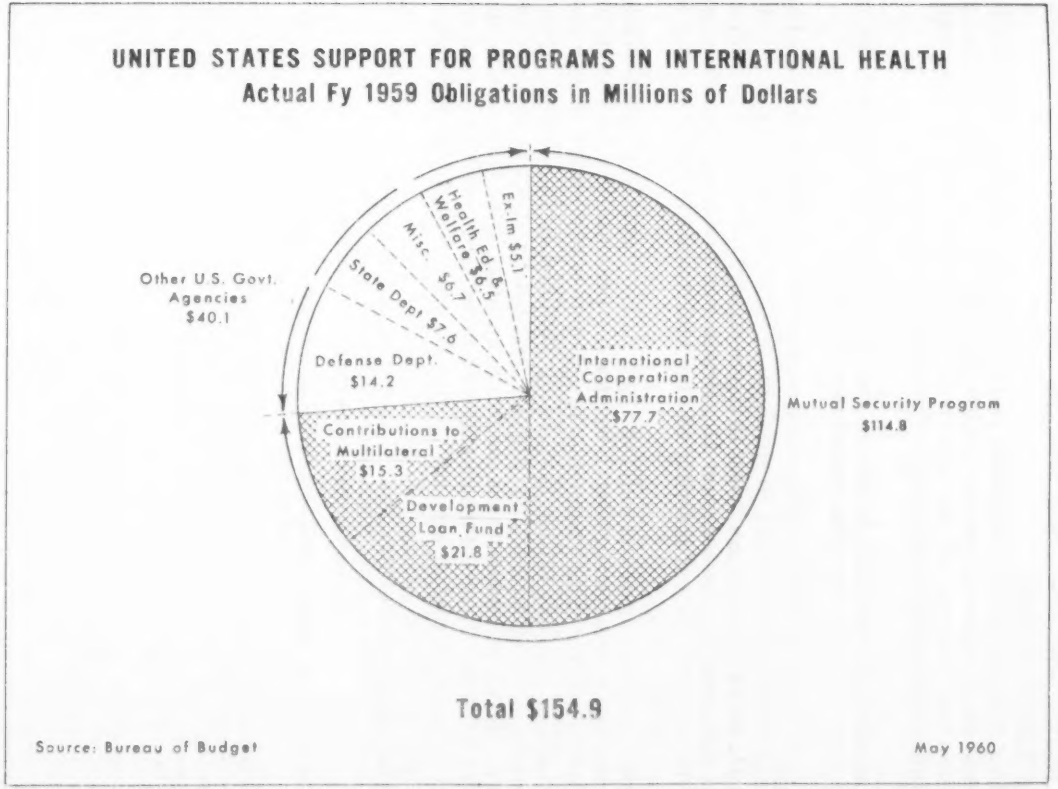
UNITED STATES SUPPORT FOR PROGRAMS IN INTERNATIONAL HEALTH
Actual Fy 1959 Obligations in Millions of Dollars
Other U.S. Govt. Agencies $40.1
State Dept $7.6
Misc. $6.7
Health Ed. & Welfare $6.5
Ex-Im $5.1
Defense Dept. $14.2
International Cooperation Administration $77.7
Mutual Security Program $114.8
Contributions to Multilateral $15.3
Development Loan Fund $21.8
Total $154.9
Source: Bureau of Budget
May 1960

FIGURE 1–1

B. Policy Statements by U.S. Officials

Senator Humphrey. "What is the relationship between these expenditures and the foreign policy of the U.S. Government?"

An answer to this question is provided by the many statements which have been made by present and past officials of the Department of Health, Education, and Welfare, and the International Cooperation Administration.

In numerous public addresses and in statements before the committees of the Congress, these and other officials have pointed out the humanitarian interests of the American Government and of the people of our country in contributing to the health of the world.

1. ADDRESS BY WALLACE R. BRODE, PH. D., FORMER SCIENCE ADVISER TO THE SECRETARY OF STATE

As the next exhibit, we refer to a very pertinent address delivered by a man eminently qualified to speak on this subject: Wallace R. Brode, Ph.D., formerly science adviser to the Secretary of State. The address was delivered on the occasion Dr. Brode was presented the Priestley Medal at the national meeting of the American Chemical Society in April 1960.

Dr. Brode expresses so well certain broad concepts in which this subcommittee is interested, that I believe his presentation will be an invaluable guide. His comments range across the entire length and breadth of science, rather than being confined to biomedical science as such. Nevertheless, they provide helpful perspective on how our effort in all of science fits in with national policy at home and abroad. The role of international collaboration in biology, chemistry and physics, a matter central to the future of medical research, is clearly set forth.

The address follows:

National and International Science[1]

By Wallace R. Brode, *Science Adviser to the Secretary of State, U.S. Department of State, Washington, D.C.*

Whether the title is "Science, Government, and Society," "The Role of Science in Foreign Policy," "The Two Cultures and the Scientific Revolution," "The Scientist in Politics: On Top or on Tap," or "International Science," the theme represents a concern over the lack of integration between science and other elements of our culture.

These few titles cited are typical of the great wealth of writing and lecturing emanating from the free world on this broad problem. Comparable discussions have not been evident in the Soviet press, and Federov of the Soviet Academy of Sciences has lamented the scarcity of public exposition by Soviet scientists on the political implications of scientific developments. He pointed out to his colleagues at the annual meeting of the Soviet Academy last year that such participation and contributions by Soviet scientists would not be difficult, because they do not have to maneuver between the Government position and scientific objectivity. He indicated that their position has been defined or brought to life by their government, and the noble task of presenting these views is an honor for the Soviet scientist to undertake.

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[1] Address by Dr. Wallace R. Brode before 137th National Meeting of the American Chemical Society, Cleveland, Ohio, Apr. 9, 1960, as reprinted in Chemical and Engineering News, Apr. 18, 1960, at p. 140.

In contrast, in our country free discussions have promoted action in our Government rather than always serving as an exposition of previously determined governmental positions. Scientific agencies have been created, such as National Institutes of Health, National Science Foundation, Atomic Energy Commission, and National Aeronautics and Space Administration. Filling key positions with scientists, such as Dr. George B. Kistiakowsky, who serves as the special assistant to the President for science and technology; Dr. Herbert F. York, Director of Defense Research and Engineering in the Department of Defense; Dr. Roy C. Newton, coordinator for utilization research, Department of Agriculture; Dr. James H. Wakelin, Jr., Assistant Secretary of the Navy for Research and Development; and others as well as my own position in the Department of State, reflects a strengthening of the role of science in the Government.

In the work of our Science Office in the Department of State, we have created a Science Officer in Washington and placed science officers in 10 of our embassies abroad. These science officers provide a major avenue of entry of scientific concepts into our foreign policy and simultaneously provide a mechanism by which our foreign policy concepts may be transmitted to our scientific community.

The two committees of which Dr. Kistiakowsky is Chairman, the President's Science Advisory Committee, composed of non-Government scientists, and the Federal Council for Science and Technology, composed of governmental administrators, exert a strong impact on relating science to other aspects of our Government. Conferences on nuclear test detection, atoms for peace, law of the sea, Antarctica, and telecommunication all include legal, scientific, economic, and political aspects; and U.S. scientists actively participate in the consideration of these problems.

In this combination of science and other concepts a balance must be achieved; science should join with other elements of our culture so integrated national and foreign policies will result. While we scientists are generally willing to concede that science should influence our national policy, we often find it more difficult to admit that our national policy should also influence our science programs. Because the political division of the world places national governments in a more dominating position with respect to citizens than an international coordinating body, so in science the national scientific societies and their publications, abstracts, and exchange programs predominate over an international science program.

The extent of engagement in international meetings and activities as compared with national society activity and direct exchange by scientists is definitely limited both by relative importance of such activity and the impediment of languages, finance, travel, national barriers, and political complications.

International role

What is international science? What is its relationship to U.S. science? Actually, the position of the United States in science on the international scene is basically a reflection of our developments at the national level, and our developments at the national level have as one of their mainstays our national science organization activities. For example, in chemistry no international organization begins to approach the force, activity, or contribution which our American Chemical Society makes to the promotion of chemistry, either with respect to activities within this Nation or the contact and dissemination of knowledge and research to other nations.

The two primary modes of furthering scientific advances are, first, publication or written communication and, secondly, the spoken word as in technical papers presented at meetings. There are some 40,000 foreign subscriptions to our American Chemical Society journals and some 6,000 foreign members of the American Chemical Society. The figure of 40,000 foreign subscriptions to our American Chemical Society journals does not include an estimated 10,000 photo offset copies issued by the Soviets for their scientists. To a degree we provide Soviet science literature to our scientists, but we are handicapped by the need for translation and the attendant printing cost. At this meeting of the American Chemical Society, if up to our average, probably 6,000 to 8,000 scientists will gather to hear more than 1,000 technical papers, most of which will be abstracts of papers to be subsequently published in detail.

National scientific societies such as the American Chemical Society must assume a major role in promotion of both national and international science just as separate governments lead in intergovernmental organizations. International programs in science will not supplant national programs except perhaps

in some special cases where a regional operation is preferable, such as UNESCO or WHO. International science programs should utilize national or regional programs. The international usage of the regions of the Antarctic, outer space, and the oceans rests on informal cooperative research between scientists of many nations and formal agreements between the separate nations.

We as scientists, and as chemists in particular, are well acquainted with our national science organization, yet it must be obvious that our difficulty sometimes in naming the officers or the location of the secretariat of the International Union of Pure and Applied Chemistry indicates that the role which international science plays in technical activity at the individual level is relatively low compared with national science activities.

We recognize, of course, that we are engaged today in more international activity than in previous generations. The International Geophysical Year was an outstanding success, and all hope that there will be an increase in this kind of international scientific activity. But we must also recognize that the producers, supporters, and consumers of this type of international activity are still organized on a natonal basis. Recognition of this fact in no way deters those who promote international scientific activity but rather acknowledges that national science is an essential constituent of our international science programs.

Science in policy planning

We have as a nation been undergoing a continuous growth and evolution accompanied by policy changes in our foreign relations. In fact, policies and programs must be adaptable and changeable to meet the challenge of these changes, without deviating from our long-range objectives. With the incorporation of scientists and the science viewpoint into our policy planning, it has been possible to develop and adapt policies to meet the special needs of science.

National policies must be adjusted to meet and either oppose or support the policies of other nations and thus create international policies. Our basic policy is to maintain a government which upholds the high ideals of the people of the United States. Each nation may have essentially the same basic policy as we have, yet directed toward its own interest.

Our policies on international meetings, foreign travel, and exchange of publications are all designed to promote to the fullest extent possible, consistent with the best interests of the United States, international science meetings in the United States; to encourage and support travel of United States scientists abroad to attend such meetings; and to support the widest exchange of published scientific material by subsidy and collection. Procedures have been established by which waivers are provided to foreign scientists for attendance at meetings in this country who would otherwise be excluded by law. Science is promoted and supported by many and various special exceptions, waivers, financial support, special attachés, and advisers.

In the latest listing of international scientific meetings, published by the Library of Congress for a projected 3 years, some 825 international scientific and technical meetings are scheduled. The list includes many regional groups, such as European societies, but does not include strictly American society meetings, such as those of the American Chemical Society which may be many times larger with more foreign attendees. However, 115 of the listed 825 meetings are scheduled to be held in the United States, whereas only 12 meetings are listed in the schedule for the Soviet Union in this same period.

In recent years free flow of scientific information and data to and from our nation has improved markedly, and much of this improvement can be credited to the campaign which scientists, and in particular Walter Murphy in "Chemical and Engineering News," waged for revision of regulations controlling export of technical data. This is just another illustration of scientists' participating in the development of policy to promote our national scientific programs.

Special scientific committees contribute to formulation of various aspects of our foreign aid program in African, Asian, and South American areas. Because some government agencies concerned have recognized the necessity for continuous and internal scientific advice, scientific staffs have been added to their organizations. Thus, scientists employed by the Government have been providing scientific viewpoints in such deliberations as conferences on law of the sea and telecommunications. The fact that scientists have been recruited by government agencies to assist in developing our policy positions should not be interpreted as a deterrent to other scientists to present their views. Gathering these viewpoints is part of the government scientists' role. In other words, a true integration of science with other elements of our culture in governmental

policy represents an appraisal of separate scientific positions, whether they be academic, industrial, or institutional, and an appropriate incorporation of these into our national policy.

Science and politics

In a recent debate between a member of our Senate and a European scientist on the general subject of whether a scientist should engage in rendering political decisions, there was quite a difference of opinion. The expressed view of the Senator was that scientists should refrain from political activities and leave these to the seasoned and experienced politician. The scientist, however, maintained that the scientists had just as much right as any one to delve into politics. What was missing from this discussion was the recognition that there is a need for people trained in both natural and political sciences to make wise decisions in this age when science should be an integral and interdependent part of our national policy promotion.

Scientists have an opportunity and a responsibility today, which is greater than ever before, to become leaders in a new concept of national government and world cooperation. We should recognize that this would require an integrated program of the natural sciences with the economic, social, psychological, and political sciences. This does not mean that natural science would simply be a tool of the other sciences; it also does not mean that natural science would override considerations of the other sciences. It does mean an honest effort by those concerned to develop a tolerance, an understanding, and a will to work toward this unified outlook.

Those who would separate science and scientists from our national policies and responsibilities have sometimes done so to disavow responsibility when actions are taken which are contrary to our governmental policies. Any individual listed as officially representing the United States, whether he is a scientist or not, has a responsibility to support his government's policies on all issues which may arise at the forum where he has official status. If, on peripheral issues, the scientist has personal views in conflict with his government's policy, it should be incumbent upon him, as long as he accepts official responsibility, to present his government's position on these peripheral matters and to refrain from any action which would negate that position.

It is reasonable to assume that there are areas of foreign policy in which scientists' influence in policy formation or administration should be comparable to that of the nonscientist, but as the subject becomes more scientific in character, the specialized competence of the scientist should exert a greater influence. Under such a planned program it would appear that the policies thus determined should in fact be acceptable to the scientist as guidelines to his operation in national and international programs.

Fundamental and applied

The separation of science from other elements of our society is about as impossible as separating basic from applied research. Our science officer in Bonn, Germany, Prof. Ludwig F. Audrieth (who is on a leave of absence from the department of chemistry of the University of Illinois) has, in an excellent appraisal, indicated, "I would make a strong plea for a position that so-called fundamental research must be objective and not merely dedicated to an increase of the world's sum total of knowledge. If the theoretical pronouncements of science cannot eventually find application in the betterment of human life, such knowledge is barren and unproductive. I believe that it is unwise for us to emphasize fundamental research continually and not to take into consideration the accomplishments which derive from application. Fundamental research and development are both part of the whole spectrum of science and technology as applied to modern life. Education, research, development, production, and usage constitute overlapping areas; each cultural area has a stimulating effect on the other phases of a total cyclical process. We cannot afford to differentiate; rather we should make an effort to integrate basic science with applied programs within a total process."

However, in the U.S.S.R. the President and Vice President of the Academy of Sciences, Nesmeyanov and Topchiev, in the annual academy report of last year have carried this theme of coordination of basic science, applied science, and national policy to an extreme, in that only those science programs which further the Communist Party's aim are promoted.

Nesmeyanov said, "The chief task lies in sharply intensifying the response of science to the country, to its national economy, to its culture, and in increasing

the effectiveness of scientific research operations by concentrating them in the most important directions."

Topchiev said, "The party teaches us that when tasks have been determined, it is necessary first of all to organize our forces in such a way as to solve the tasks placed before us with a minimum expenditure of resources and with maximum effectiveness. The new increase of research work in decisive sectors of science will require a fundamental reorganization of the Academy of Sciences, U.S.S.R., and its institutions. The reorganization of the academy must guarantee that scientific work is brought closer to the demands of life. * * *"

Topchiev presented a priority list of 30 most important problems to be studied and solved. In the area of chemistry, items included were study and creation of new semiconductor materials; study of the chemistry of high-molecular compounds; the creation of a general theory of the structure and properties of polymers and the search for principles and methods of producing rubber, fibers, and plastics of a given structure and a given set of chemical and physicomechanical properties; finding starting and auxiliary substances for the conversion of petroleum, gas, and mineral raw materials; studying the chemistry of natural and biologically important compounds; research on the structure and properties of proteins, carbohydrates, and nucleotides; production of new effective antibiotics (primarily anticancer and antivirus); synthesis of new vitamins, enzymes, and medicines; research on metals and alloys (primarily zirconium, niobium, tantalum, beryllium, germanium, lithium, selenium, and tellurium); studies in radiochemistry, the chemical action of penetrating radiation, and the use of isotopes; discovering natural laws governing distribution of most important mineral resources in the earth's crust; and studies in biochemistry, technical biochemistry, and photosynthesis.

It should be recognized that, whereas most of these programs can be directed toward development of peaceful scientific advances, they can also be applied for military or economic purposes; and a concentrated effort devoted to this limited list of projects could with reasonable accomplishment lead to higher prestige for the Soviet science program and to its stated national economy objectives.

The concentration of effort and the proposed reorganization of Soviet science to achieve these chemical goals (as well as similar physical, biological, engineering, and social ones) demonstrate the dedicated way in which the Soviets are pursuing their objectives. In contrast, are we in this Nation considering the extent of planning essential for long-range science programs and also successful national and foreign policies?

National planning needed

We are certainly moving toward such planning in our legislative studies and agency planning, but our many varied agencies and organizations in science and technology in governmental, State, private, and industrial areas require a careful and well-conceived plan of operation.

Our free world nations have made advances toward strengthening science in their governmental organizations. Great Britain has recently created a Ministry for Science. Cabinet level or near Cabinet level status for science has been established by France, Belgium, Canada, South Africa, Japan, and other nations.

Last December, in addressing the American Association for the Advancement of Science, I cited the need for planning our science program at the national level and suggested the creation of a commission to study this problem. I hope that such a commission would develop suggestions for coordination of our national science program. I am not recommending specifically that the solution should be a department of science, an institution, or a foundation. Rather I am recommending that we face up to and handle the problem of creating a proper position for science in our national policy and operation.

There are many implementing policies and activities which are promoted by our Government, societies, and individual citizens which are planned or performed with a feeling that these actions are in consonance with our basic policy. We may, however, find that some activities or programs conflict with each other or may not in fact be in our best interest. In such cases we may well need to reorient or change the program. The increasing penetration of science and technology into our national lives is a two-way effect depending on which area of the "two cultures" one inhabits. A fusion is to be encouraged and supported, for we must accept the interdependence of science and national policies. Each includes portions of the other, and both are directed and supported by our basic policy of furthering the best ideals of our country. Our science program must

represent a balance between national and international efforts which will simultaneously preserve national and free world ideals, security, and prestige and promote worldwide cultural advance. The United States' position and prestige in the world of science depends on our doing good work in science, publishing our results, and giving our scientists adequate recognition for their accomplishments.

2. EXCERPTS OF ADDRESS BY GEORGE KISTIAKOWSKY, PH. D., FORMER SPECIAL ASSISTANT TO THE PRESIDENT FOR SCIENCE AND TECHNOLOGY

Senator HUMPHREY. The next exhibit consists of excerpts from a related address by the distinguished scientist, Dr. George B. Kistiakowsky, former Special Assistant to the President for Science and Technology.

Under the theme, "Science and Foreign Affairs," Dr. Kistiakowsky made numerous cogent observations which apply to international efforts and support in all scientific disciplines, including biology and medicine.

However, only those portions of the address with particular reference to the life sciences are being reprinted.

Other sections of the talk bore principally upon the physical sciences, international scientific agreement on arms control, etc.

The address, published in the April 8, 1960, issue of "Science," follows:

SCIENCE AND FOREIGN AFFAIRS

Recent scientific and technical advances have had a dramatic effect on international relations

BY G. B. KISTIAKOWSKY [2]

* * * * * * *

Science and technical aid

I come now to the fourth, and last, of my list of "new" relations between science and foreign policy, which I called the relation of science to technical aid for less-developed countries.

The foreign-aid programs supported by the United States are powered by a matrix of motivations made up of altruism, a belief that it is to our best interest to strengthen independent nations, and a desire to contain menacing philosophies. Motivation notwithstanding, it is evident that any program, any experiment, will fall short of success unless it is soundly conceived, soundly planned, and soundly executed.

In helping to achieve a sound aid program, we, as scientists, must not think in terms of developing only the more advanced scientific capability of other nations, which is often a reflection of our own standards and comfortable abundance. We must try to strike a balance between basic needs and sophisticated development. This requires an appreciation of the way in which science and engineering develop within a nation. In many lands the history of science has not been written beyond the prologue. We must, for instance, be aware of the long-term relation between primary and secondary school education and advanced research institutions.

We do little good by providing only for esoteric research facilities when a nation lacks roads, general practitioners, and machine operators. Of course, we do a disservice also when we ignore the advanced educational institutions that set a nation's standards, provide its teachers, offer a future for gifted citizens, and bring prestige to a nation or a region.

I would like to digress a moment to commend to your attention a recent report prepared by the National Academy of Sciences—National Research Council for the International Cooperation Administration, entitled "Recommendations for Strengthening Science and Technology in Selected Areas South of the Sahara."

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[2] This article is adapted from an address delivered before the American Physical Society and the American Association of Physics Teachers in New York City, Jan. 29, 1960.

Our committee stimulated the undertaking of this important study, to be viewed as an experiment. It is an outline of the way in which assistance of a technological type should be designed to be properly utilized. It is an intelligent and realistic attempt to strike the necessary balance between basic needs and sophisticated wants, within a framework of limited resources, from within and without an area. It is also an attempt—a very successful one I believe—to show how a scientific approach can be used in the early planning stages of aid programs.

The reading of the report will have a sobering and disturbing, if not a frightening, effect on thinking individuals. It treats of selected areas of sub-Saharan Africa, of a land mass equal to that of the United States with a population one-half that of our Nation—and this is only part of sub-Saharan Africa. It is an area which, within our lifetimes, will be transformed into a multiplicity of independent nations which, collectively, will greatly influence world affairs. Particularly disturbing in this study are the revelations of extreme shortages that still exist in this region—the nearly complete lack of public health measures and medical services, of communications and transportation, of the means for earning an income, of even the most elementary education facilities. Clearly, these embryonic nations need educated people in large numbers to provide not only civil servants but an understanding electorate to carry them along the path to democracy. But how can the needs for higher education, for doctors, for engineers, for political scientists, for so many other specialists be properly balanced against the need to provide even the most primitive health measures, to provide teachers for the many millions of illiterates, and to train the artisans and skilled laborers without whom the standard of living cannot rise? Against these multiple desperate needs, indigenous efforts, our aid, and the aid of others appear so utterly inadequate that one becomes fearful lest decades will pass before the level of education and the standard of living will rise enough to make democracy viable. The question then comes to mind: Will the awakening of latent desires allow democracy the time it needs to develop—a need inherent in its evolutionary nature—or will this region fall prey to the legerdemain appeal of revolutionary authoritarianism, especially Communist ideology?

For a research scientist this report will have a sobering influence: it will point out to him that he is a luxury that can, and must, be afforded by an advanced nation like ours, whereas in Africa south of the Sahara, a nurse, an elementary school teacher, a technician—these are the luxuries.

Science impinges on aid to technologically more advanced nations also. Various government departments have for many years supported research overseas. By and large, these programs have been well run. Such programs raise some serious issues for consideration, however, for outside support of science in a given country affects the relationships between that government and its citizens and universities. Some programs, even those in support of basic research, are welcomed by many foreign scientists, yet seem an affront to others. We must, therefore, consider the effects of such programs on all who are concerned, and especially on the natural growth of the scientific communities in the recipient countries. Does such support, for instance, actually retard the development of a healthy relation between science and government in other countries? What commitments are we making for continuity of support once foreign scientists have become dependent on U.S. support—commitments from which it may be impossible to withdraw or which may cause hardship should withdrawal be necessary? What is the effect of our support on the pattern of research in a given country? And is the manner in which our support is given in this area best calculated to further good relations between the scientific communities of other countries and the United States?

We are not the only ones who are aware of these problems. In its most recent annual report, the United Kingdom's Advisory Council on Scientific Policy, addressing itself to just these questions, had this to say about U.S. research support: "Whilst we warmly welcome this substantial financial support for research in this country, we recognize that research grants, and particularly specific contracts, of this magnitude (one and a quarter million pounds annually) must have a considerable influence on the general pattern of research undertaken. We, therefore, consider it desirable that the various bodies concerned with the financing of research in our universities and other institutions should be aware both of the extent and the purpose of these numerous United States research grants and contracts. We are glad to be able to record that the United States authorities have fully appreciated the position and have shown themselves ready to cooperate with us * * *."

Of course, there are no general answers to most of the specific questions raised, for they vary with the country concerned and with the manner in which our support is given in each country. But these questions need to be asked—and answered—before support is provided. These programs cannot be operated independently of foreign policy considerations.

* * * * * * *

C. International Health Research Act

Senator Humphrey. No law is more pertinent to the international health study in which the subcommittee is engaged than Public Law 86-610. This law was based on Senate Joint Resolution 41, 86th Congress. It had been introduced by Senator Lister Hill of Alabama and was cosponsored by many other Senators including several members of the subcommittee.

This subcommittee, as such, took no position on the bill. It was not pending before us and its consideration was not within our purview. Nevertheless, it should be noted that in our second committee print regarding "Statutory Authority for Medical and Other Health-Related Research in the U.S. Government," specific mention had been made of the need to make explicit the implicit authority of Federal agencies to engage in oversea biomedical research. This objective has now been accomplished through Public Law 86-610. The law does not, it should be noted, actually provide for a National Institute for International Health and Medical Research, as otherwise indicated.

As a ready reference, the text of this law is printed at this point.

Public Law 86-610
86th Congress, S. J. Res. 41
July 12, 1960

JOINT RESOLUTION

74 STAT. 364.

To establish a National Institute for International Health and Medical Research, to provide for international cooperation in health research, research training, and research planning, and for other purposes.

International Health Research Act of 1960.

Whereas it is recognized that disease and disability are the common enemies of all nations and peoples, and that the means, methods, and techniques for combating and abating the ravages of disease and disability and for improving the health and health standards of man should be sought and shared, without regard to national boundaries and divisions; and

Whereas advances in combating and abating disease and in the positive promotion of human health can be stimulated by supporting and encouraging cooperation among scientists, research workers, and teachers on an international basis, with consequent benefit to the health of our people and of all peoples; and

Whereas there already exist tested means for international cooperation in matters relating to health, including the World Health Organization, the Pan American Health Organization, and the United Nations Children's Fund (UNICEF), with which the United States is identified and associated, and it is highly desirable that the United States establish domestic machinery for the maximum mobilization of its health research resources, the more efficiently to cooperate with and support the research, research-training and research-planning endeavors of such international organizations: Therefore be it

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled,

SHORT TITLE

SECTION 1. This joint resolution may be cited as the "International Health Research Act of 1960".

PURPOSE OF RESOLUTION

SEC. 2. It is the purpose of this joint resolution—

(1) to advance the status of the health sciences in the United States and thereby the health of the American people through cooperative endeavors with other countries in health research, and research training; and

(2) to advance the international status of the health sciences through cooperative enterprises in health research, research planning, and research training.

AUTHORITY OF SURGEON GENERAL

SEC. 3. Part A of title III of the Public Health Service Act (42 U.S.C., ch. 6A) is amended by adding immediately after section 307, the following new section:

58 Stat. 691; 70 Stat. 924. 42 USC 241-242c.

"INTERNATIONAL COOPERATION

"SEC. 308. (a) To carry out the purposes of clause (1) of section 2 of the International Health Research Act of 1960, the Surgeon General may, in the exercise of his authority under this Act and other provisions of law to conduct and support health research and research training, make such use of health research and research training resources in participating foreign countries as he may deem necessary and desirable.

"(b) In carrying out his responsibilities under this section the Surgeon General may—

"(1) establish and maintain fellowships in the United States and in participating foreign countries;

"(2) make grants to public institutions or agencies and to nonprofit private institutions or agencies in the United States and in participating foreign countries for the purpose of establishing and maintaining fellowships;

"(3) make grants or loans of equipment, medical, biological, physical, or chemical substances or other materials, for use by public institutions or agencies, or nonprofit private institutions or agencies, or by individuals, in participating foreign countries;

"(4) participate and otherwise cooperate in any international health research or research training meetings, conferences, or other activities;

"(5) facilitate the interchange between the United States and participating foreign countries, and among participating foreign countries, of research scientists and experts who are engaged in experiments and programs of research or research training, and in carrying out such purpose may pay per diem compensation, subsistence, and travel for such scientists and experts when away from their places of residence at rates not to exceed those provided in section 5 of the Administrative Expenses Act of 1946 (5 U.S.C. 73b–2) for persons in the Government service employed intermittently; and

69 Stat. 394.

"(6) procure, in accordance with the provisions of section 15 of the Administrative Expenses Act of 1946 (5 U.S.C. 55a), the temporary or intermittent services of experts or consultants; individuals so employed shall receive compensation at a rate to be fixed by the Secretary, but not in excess of $50 per diem, including travel time, and while away from their homes or regular places of business may be allowed travel expenses, including per diem in lieu of subsistence, as authorized by section 5 of the Administrative Expenses Act of 1946 (5 U.S.C. 73b–2) for persons in the Government service employed intermittently.

60 Stat. 810.

"(c) The Surgeon General may not, in the exercise of his authority under this section, assist in the construction of buildings for research or research training in any foreign country.

Definitions.

"(d) For the purposes of this section—

"(1) The term 'health research' shall include, but not be limited to, research, investigations, and studies relating to causes and methods of prevention of accidents, including but not limited to highway and aviation accidents.

"(2) The term 'participating foreign countries' means those foreign countries which cooperate with the United States in carrying out the purposes of this section."

AUTHORITY OF SECRETARY

SEC. 4. (a) To carry out the purposes of clause (1) of section 2 of this Act, the Secretary of Health, Education, and Welfare (hereafter referred to as the "Secretary") may in the exercise of his responsibilities under the Vocational Rehabilitation Act (29 U.S.C., ch. 4) and the Act entitled "An Act to establish in the Department of Commerce and Labor a bureau to be known as the Children's Bureau", approved April 9, 1912, as amended (42 U.S.C., ch. 6), and any other provision of law, to conduct and support health research and research training, including research and research training relating to the rehabilitation of the handicapped, make such use of health research

68 Stat. 652.

37 Stat. 79.

and research training resources in participating foreign countries as he may deem necessary and desirable.

(b) To carry out his responsibilities under this section the Secretary may—

(1) establish and maintain fellowships in the United States and in participating foreign countries;

(2) make grants to public institutions or agencies and to nonprofit private institutions or agencies in the United States and in participating foreign countries for the purpose of establishing and maintaining fellowships;

(3) make grants or loans of equipment, medical, biological, physical, or chemical substances or other materials, for use by public institutions or agencies, or nonprofit private institutions or agencies, or by individuals, in participating foreign countries;

(4) participate and otherwise cooperate in any international health or medical research or research training meetings, conferences, or other activities;

(5) facilitate the interchange between the United States and participating foreign countries, and among participating foreign countries, of research scientists and experts who are engaged in experiments and programs of research or research training, and in carrying out such purpose may pay per diem compensation, subsistence, and travel for such scientists and experts when away from their places of residence at rates not to exceed those provided in section 5 of the Administrative Expenses Act of 1946 (5 U.S.C. 73b–2) for persons in the Government service intermittently employed; and 69 Stat. 394.

(6) procure, in accordance with the provisions of section 15 of the Administrative Expenses Act of 1946 (5 U.S.C. 55a), the temporary or intermittent services of experts or consultants; individuals so employed shall receive compensation at a rate to be fixed by the Secretary, but not in excess of $50 per diem, including travel time, and while away from their homes or regular places of business may be allowed travel expenses, including per diem in lieu of subsistence, as authorized by section 5 of the Administrative Expenses Act of 1946 (5 U.S.C. 73b–2) for persons in the Government service employed intermittently. 60 Stat. 810.

(c) For the purposes of this section—

(1) The term "health research" shall include, but not be limited to, research, investigations, and studies relating to causes and methods of prevention of accidents, including but not limited to highway and aviation accidents. Definitions.

(2) The term "participating foreign countries" means those foreign countries which cooperate with the United States in carrying out the purposes of this section.

AUTHORITY OF PRESIDENT

SEC. 5. (a) It is the sense of Congress that the President should use his authority under the Constitution and laws of the United States to accomplish the purposes of section 2 of this joint resolution and in accomplishing such purposes (1) use to the fullest extent practicable foreign currencies or credits available for utilization by the

United States, (2) enter into agreements to use foreign currencies and credits available to other nations for use with the agreement of the United States, and (3) use any other foreign currencies and credits which may be made available by participating foreign countries.

(b) To carry out the purposes of section 2 of this joint resolution the President, in cooperation with participating foreign countries, is authorized to encourage, support, and promote the planning and conduct of, and training for, research investigations, experiments, and studies in the United States and in participating foreign countries relating to the causes, diagnosis, treatment, control, and prevention of diseases and impairments of mankind (including nutritional and other health deficiencies) or to the rehabilitation of the handicapped.

(c) To carry out his responsibilities under this joint resolution the President may—

(1) establish and maintain fellowships in participating foreign countries;

(2) make financial grants to establish and maintain fellowships, and for other purposes, to public institutions and agencies and to nonprofit private institutions and agencies, and to individuals in participating foreign countries, or contract with such institutions, agencies, or individuals without regard to sections 3648 and 3709 of the Revised Statutes of the United States;

31 USC 529.
41 USC 5.

(3) make grants or loans of equipment, medical, biological, physical, or chemical substances or other materials, for use by such institutions, agencies, or individuals;

(4) furnish technical assistance and advice to such institutions or agencies and in carrying out such purposes may pay the compensation and expenses of scientists and experts from the United States and other participating foreign countries;

(5) facilitate the interchange among participating foreign countries of scientists and experts (including the payment of travel and subsistence for such scientists and experts when away from their places of residence);

(6) cooperate and assist in the planning and conduct of research, research planning, and research training programs and projects by groups engaged in, or concerned with, research or research training endeavors in the health sciences, and, through financial grants or other appropriate means, assist in special research, research planning, or research training projects conducted by or under the auspices of such groups where they can effectively carry out such activities contemplated by this joint resolution;

(7) encourage and support international communication in the sciences relating to health by means of calling or cooperating in the convening, and financing or contributing to the financing of the expenses of, international scientific meetings and conferences; and provide, or arrange for the provision of, translating and other services, and issue or finance publications, leading to a more effective dissemination of relevant scientific information with respect to research conducted in the United States or participating foreign countries.

(d) The activities authorized in this section shall not extend to the support of public health, medical care, or other programs of an operational nature as contrasted with research and research training nor shall any of the grants authorized by this section include grants for the improvement or extension of public health administration in other countries except for necessary research and research training in the science of public health and public health administration. Restriction.

(e) The President is authorized, to the extent he deems it necessary to carry out the purposes of section 2 of this joint resolution, to employ experts and consultants or organizations thereof, as authorized by section 15 of the Administrative Expenses Act of 1946 (5 U.S.C. 55a), and create a committee or committees to be composed entirely of persons who are citizens of the United States to advise him in the administration of this joint resolution; individuals so employed and members of committees shall be entitled to receive compensation at a rate to be fixed by the President, but not to exceed $50 per diem, including travel time, and while away from their homes or regular places of business they may be allowed travel expenses, including per diem in lieu of subsistence, as authorized by section 5 of the Administrative Expenses Act of 1946 (5 U.S.C. 73b-2) for persons in the Government service employed intermittently. 60 Stat. 810. 69 Stat. 394.

(f) The President may delegate any authority vested in him by this section to the Secretary of Health, Education, and Welfare. The Secretary may from time to time issue such regulations as may be necessary to carry out any authority which is delegated to him under this section, and may delegate performance of any such authority to the Surgeon General of the Public Health Service, the Director of the Office of Vocational Rehabilitation, the Chief of the Children's Bureau, or other subordinates acting under his direction. Delegation of authority.

(g) In order to carry out the purposes of section 2 of this joint resolution, and subject to section 1415 of the Supplemental Appropriation Act, 1953, the President may use or enter into agreements with foreign nations or organizations of nations to use the foreign currencies which accrue under title I of the Agricultural Trade Development and Assistance Act of 1954, and the Mutual Security Act of 1954, or which are otherwise available for utilization by the United States. The President is authorized to agree to the utilization by foreign nations, for programs designed to carry out the purposes of section 2 of this joint resolution in cooperation with the United States, of amounts deposited in special accounts pursuant to section 142(b) of the Mutual Security Act of 1954, to the extent that the amounts in such accounts exceed the requirements of other programs covered by such section 142(b). Such utilization of amounts in special accounts shall be without regard to the second proviso in clause (iii) of such section 142(b). Use of foreign currencies. 66 Stat. 662. 31 USC 724. 68 Stat. 455. 7 USC 1701-1709. 68 Stat. 832; 69 Stat. 285. 22 USC 1852.

(h) The President shall transmit to the Congress at the beginning of each regular session, a report summarizing activities under this section and making such recommendations as he may deem appropriate. Report to Congress.

(i) For the purposes of this section— Definitions.

(1) the term "health research" shall include, but not be limited to, research, investigations, and studies relating to causes and methods of prevention of accidents, including but not limited to highway and aviation accidents.

(2) the term "participating foreign countries" means those foreign countries which cooperate with the United States in carrying out the purposes of this section.

OTHER AUTHORITY

SEC. 6. Nothing in this joint resolution shall be construed to repeal or restrict authority vested in the President, the Secretary of State, the Secretary of Health, Education, and Welfare, the Surgeon General of the Public Health Service, or any other officer or agency of the United States by any other provision of law.

Approved July 12, 1960.

2. ARTICLE BY HOWARD A. RUSK, M.D., ON "HEALTH FOR PEACE"

Senator HUMPHREY. Background for Public Law 86–610 is contained in an article which appeared in the New Physician, issue of May 1959, following Senator Hill's introduction of Senate Joint Resolution 41.

The article was written by the distinguished associate editor of the New York Times, Dr. Howard A. Rusk. I know of no American physician who has given more generously of his time and great talent to the U.S. Congress than Dr. Rusk, in this and innumerable other legislative needs.

The final version which the Congress approved in the form of Public Law 86–610 differs (in my judgment, unfortunately so) from the original version offered by Senator Hill. The original version would, for example, have provided for a separate institute to administer oversea programs. Nevertheless, Dr. Rusk's background summary is of deep interest.

The article from the journal of the Student American Medical Association follows:

HEALTH FOR PEACE

(By Howard A. Rusk, M.D., New York, N.Y.)

One of the distinguishing features of international relations in the past few decades is our growing recognition throughout the world that the security and welfare of one part of the world are dependent upon the security and welfare of each other part of the world.

Some of this recognition has been forced upon us by the technological advances of the 20th century which have created a shrinking world in terms of communications, transportation, trade, and devastating effects of modern weapons of warfare. Mankind through the ages has been forced, for practical purposes, to develop social concepts to fit the realities of his changing environment.

I, for one, and I am sure this concept is shared by the great majority of people throughout the world, regardless of their race, relations, nationalities, or professions, believe this growing recognition of mutual dependence has not resulted from practical necessity alone, but that it also represents our ability as our society matures to give fuller expression to a feeling that is as old as mankind itself—the desire to share and to help our neighbor.

Technical assistance

This concept has long been practiced by religious and private organizations, but it has been only within recent years that technical assistance programs, in which one portion of the world aids another, have been conducted by government groups. The first really global recognition of this multilateral responsibility came with the establishment of the United Nations and its specialized agencies which have placed heavy emphasis on technical assistance. In addi-

tion to these multilateral programs, various governments throughout the world have initiated bilateral programs for technical assistance outside of the framework of the United Nations.

Even the greatly increased attention to such activities through the multilateral programs of the United Nations and the bilateral programs of individual nations has not, however, filled the need which most of us feel within our minds and our hearts for increasing international cooperative activities. Consequently within the past decade there has been a great surge forward of international communication and sharing of knowledge among professions.

We recognize that in today's world, international diplomacy and the development of international understanding cannot be solely the responsibilities of the diplomat. They are responsibilities which must be assumed by all of us in our roles as professional persons and individual citizens.

It has long seemed to me that in the field of health and rehabilitation, we have a uniquely effective area of service and of responsibility for working toward international understanding. Health, including rehabilitation services for the handicapped, is fundamental to the prime democratic concept of equal opportunity for all. A world in which good health is enjoyed by but a few cannot be a politically stable world. How can the man who is doubled up by pain and disability stand up and fight militantly for the principles of democracy and freedom? Unless he can work and produce, how can he enjoy the fruits of his own labor and become a customer for the goods which all of the world wants to sell him? Unless he can produce and earn and then buy from the rest of the world, how can his standards of living be increased?

Good health is fundamental to economic self-sufficiency. Dr. Charles W. Mayo summed up this relationship aptly when he said with great simplicity, "(1) Sickness makes people poor. (2) Poverty makes people sick."

As compared to military assistance, health assistance is positive in that it is directed toward the alleviation of the human suffering which results from disease, hunger, and poverty. Our hope for the future lies in improving the health and social and economic status of the world's underprivileged people. Let us remember that throughout the world, in the old adage of man's basic desires, he wants first to be "healthy" even before being "wealthy and wise" for he knows he can achieve the latter two aims only by achieving the former. By helping the people of the world to help themselves, we are also demonstrating to the world our belief in democracy and its better way of life. We are showing that freedom from disease and want can be attained without sacrificing political and social freedom.

Fortunately, there is a growing recognition throughout the United States of the effectiveness of international health and rehabilitation as a major program in our American foreign policy. Congress last year gave more impetus to international health than any previous Congress.

Mutual efforts

Our Mutual Security Act now proclaims it to be the policy of the United States to continue and strengthen mutual efforts among the nations for research against disease in all parts of the world, noting that these diseases, such as cancer, constitute "a major deterrent in the efforts of many people to develop their economic resources and productive capacities and to improve their living conditions."

Another amendment to the mutual security law authorizes the use of funds obtained from the sale of surplus foods abroad for the support of medical research in foreign countries.

This year the Senate unanimously passed a resolution urging the President of the United States through the medium of the World Health Organization and related groups to invite the nations of the world to designate an international Health and Medical Research Year.

In his state of the Union message last January, President Eisenhower proposed a "science for peace" plan to "attain a good life for all." As the first step in such a program the President invited the Soviet Union to join the current 5-year program for the global eradication of malaria. The President then stated our willingness to pool our efforts with the Russians in other campaigns against cancer and heart disease. "If people can get together on such projects," he asked, "is it not possible that we could then go on to a full-scale cooperation program of science for peace?"

A very modest start toward the general objectives of the plan is already underway with the $300,000 grant made by the United States to the World Health

Organization for a preliminary study to lay the groundwork for medical research on an international basis. This grant was announced by Dr. Milton Eisenhower, president of Johns Hopkins University, as the personal representative of his brother, the President, at the annual World Health Organization assembly in Minneapolis last June.

Substantial support

Dr. Eisenhower said at the time that the United States was prepared to give such a program "substantial support." Earlier this year (February 1959) the executive board of the World Health Organization meeting in Geneva approved a six-point program for extended medical research drawn up by the Director General of the World Health Organization, Dr. M. G. Candau, as the result of the instructions he received at the World Health Assembly in Minneapolis last June.

Last September in a speech before the General Assembly of the United Nations, Secretary of State John Foster Dulles pledged that the President would seek funds from the current session of the Congress for international health programs. Following that statement there appeared in the press reports that Secretary of Health, Education, and Welfare Arthur Flemming had gathered together a group to work out a plan for an international health program which President Eisenhower would incorporate as his international health recommendations in a special health message to the incoming 86th Congress.

International research

In August 1958, Senator Lister Hill, Alabama, the "dean" of American health legislators, introduced what is probably the most significant of the many proposals for furthering international cooperation in health—a plan to greatly expand U.S. support of and participation in international research in health, medicine, and rehabilitation. The same legislation was also introduced in the House of Representatives by Representative John E. Fogarty, Rhode Island.

Early in February of this year, Senator Hill reintroduced his proposal as the International Health and Medical Research Act of 1959. In a strong show of bipartisan support, 59 of Senator Hill's colleagues joined him in cosponsoring this legislation.

This legislation, known popularly as the health for peace bill, would create within the National Institutes of Health a new National Institute of International Medical Research with an annual appropriation of $50 million.

These funds would be used to encourage and support research and the exchange of information on research, the training of research personnel, and the improvement of research facilities throughout the world.

The bill would authorize grants to support such activities ranging from research in basic science to research in rehabilitation. Grants could be made to foreign and American universities and research organizations and to voluntary and governmental international agencies such as the World Health Organization.

Under the plan, a National Advisory Council for International Medical Research, composed of nongovernmental leaders, would establish policies, make recommendations, and approve grants and loans under the program.

National Institutes

The existing specialized institutes within the National Institutes of Health (e.g., National Heart Institute, National Cancer Institute, National Institute of Neurological Diseases and Blindness, National Institute of Arthritis and Metabolic Diseases, and others) and the Office of Vocational Rehabilitation and the Children's Bureau would serve as the technical groups to advise the new National Advisory Council for International Medical Research on specific projects within their particular area of interest and competence.

The program would not replace any of our current programs of multilateral international health activities through the World Health Organization or UNICEF or any of our bilateral activities conducted through the International Cooperation Administration.

Nor would it supplant the research programs being conducted in the United States through the National Institutes of Health. It would enhance these activities and at the same time provide a mechanism and funds for uniting science throughout the world in a greatly expanded global attack on disease and disability.

Although there are innumerable corollary values in the International Health and Medical Research Act of 1959, it is based primarily on recognition of the

fact that medical research is so highly complex and interrelated that victory over any disease or disability can be achieved only through the research results of many scientists throughout the world.

The history of medicine is replete with examples of this.

It was a Dutch scientist in 1676 who first revealed the world of microorganisms. An English physician, Edward Jenner, who observed in 1796 that vaccination prevented smallpox, provided the basis for modern immunological concepts.

Iwanowski, a Russian, identified the first virus in 1892. Two Canadians, Sir Frederick Banting and Charles Best, were the first to isolate insulin in 1921.

The Spanish neuroanatomist, Santiago Ramon y Cajal, and the Italian histologist, Camillo Golgi, shared the Nobel prize in 1906 for their work on the structure of the nervous system.

Worldwide inventions

The list goes on and on—penicillin from England, cortisone from the United States, rauwolfia from India, sulfonamides from Germany.

It was to discuss the proposals for a greatly expanded international medical research program that Senator Hubert Humphrey, Democrat of Minnesota, went to Moscow in early December for his now famous 8-hour interview with Soviet Premier Nikita S. Khrushchev. The first 2 hours were spent discussing international medical research.

In a statement issued in Moscow after the interview, Senator Humphrey reported the Soviet Premier had given "enthusiastic approval" to the proposal.

He said further: "During my interview with the Premier, I had noted that areas of disagreement between our respective foreign policies remain broad and deep. It does not appear that, for a considerable time, these differences will be resolved. In the meantime, we need to learn how to work together, and the best place to start is in the nonpolitical area. The world is hungry for some evidence of effective Soviet-American collaboration. One of the best areas in which to start is in the field of health. * * *"

The fact that 59 other Senators joined with Senator Hill in cosponsoring his "health for peace" bill indicates that a majority of the Senate agree with the statement of Senator Humphrey on the need for such a program and with Senator Hill that his proposals would help meet that need.

Breakthrough on diseases

They realize that not only will such a program improve international understanding but also may well provide a breakthrough on the killing and crippling diseases that plague mankind.

This enthusiastic support is not limited to the Congress or the medical and health professions. In a nationwide study conducted by the University of Michigan Survey Research Center for the National Association of Science Writers and New York University, 54 percent of those questioned reported that if forced to choose between spending money for medical research or putting the first man on the moon they would favor medical research.

The "health for peace" bill gives dimension and significance to the aphorism of the late Sir William Osler, who once said: "The great republic of medicine knows and has known no national boundaries."

D. Interagency Organization for International Health

Senator Humphrey: "How is the executive branch organized on an interagency basis for purposes of fostering international health?"

The answer was provided in part by the chart in the hearing volume—part I, page 168. It depicted the various Federal agencies which contribute to international health.

Here, however, we are concerned with the mechanisms among the agencies, as established for consultation and coordination on problems of international technical assistance and international medical research.

By contrast, the succeeding section B contains descriptive and statistical information on each agency's individual programs.

The answers herein, so far as interagency relationships are concerned, are indicated by the letters which follow.

(1) A letter of January 8, 1960, from Dr. Wallace R. Brode, in which he responded to various inquiries which I had made as regards interagency coordinating mechanisms.

(2) A letter of February 4, 1960, from Secretary of Health, Education, and Welfare, Arthur S. Flemming, on one of the phases of the same subject, namely the work of the Interdepartmental Committee on International Health Policy.

DEPARTMENT OF STATE,
Washington, January 8, 1960.

DEAR SENATOR HUMPHREY: Supplementing my interim reply of December 22, 1959, I take pleasure in submitting below a report on the questions raised in your letter of December 11.

As to item (a) in your letter, on the extent to which the Department of State serves as a coordinating force in oversea biomedical research work on the part of Federal agencies, the Department serves as such a force through mechanisms in Washington and in the field. In the functioning of these mechanisms, biomedical and other subject-matter research, basic and applied, are embraced in the scope of their interest. Applied research, however, essential to technical phases of military programs is not usually included.

One of these mechanisms that soon will be operating in Washington is the International Committee of the Federal Council for Science and Technology. The council agreed recently to establish this committee. Its overall purpose is to provide recommendations to the council on measures to promote and enhance U.S. participation in and support for international scientific activities compatible with our foreign policy. To carry out this purpose, one of the functions of the committee is "to consider and make recommendations on the relative priority of programs with respect to our foreign policy and the degree to which agencies or organizations should be coordinated in their foreign operations as may be influenced by policies and characteristics of the foreign countries."

As science adviser to the Secretary of State, I have been asked to serve as chairman. I am now in the process of organizing the committee. It should constitute a force helpful in coordinating oversea biomedical and other research work on the part of Federal agencies.

Certain steps have been taken in the Office of the Science Adviser toward coordinating oversea research work of Federal agencies. For the purpose of advising these agencies—i.e., Defense (Army, Navy, Air Force), Agriculture, NIH, AEC, ICA, NSF, and NASA—on matters of coordinating their oversea research activities, including biomedical, from the standpoint of their consistency with our foreign policy, I have on the one hand requested each agency to submit a schedule of their present scientific research programs abroad and a plan of their future activities. I have, on the other hand, provided leadership for a group of nine specialists in the life sciences (including biology and medicine), earth sciences, and the physical sciences from certain Government agencies and the National Academy of Sciences to survey scientific research requirements and potentials in Latin America—an area where only incomplete knowledge in this subject is available. One part of Latin America has already been surveyed by the group, and another part will be covered this spring.

I should indicate also that an Interdepartmental Committee on International Health Policy has been meeting in Washington for some months and announcement of its establishment is expected in the near future. In the range of questions that have been proposed for consideration by the committee is the matter of appropriate field relationships among oversea personnel of Federal agencies carrying on health and medical activities abroad. Committee consideration of such a question would be purely advisory, however, since it is not expected to have any coordinating function.

Still another mechanism is inherent in the responsibility of the Embassies to coordinate United States activities carried on in their areas of jurisdiction. The Department attempts to keep its Embassies abreast of oversea scientific activities of Federal agencies through instructions and through supplying literature on those programs, and is largely dependent on the cooperation of the other agencies in this effort. Also, ordinarily a representative of a Federal agency stationed abroad and responsible for carrying out its oversea program will, from the standpoint of his own interest as a good administrator and of the success of the program overseas, frequently confer with the Embassy on the matter of

coordinating his work with the overall objectives of the Embassy. The Science Adviser's Office in Washington and the science attachés overseas are attempting to strengthen this mechanism, so far as oversea scientific programs are concerned, by (*a*) keeping the Embassies informed of such programs; and (*b*) asking the science attachés to help the Embassies regularize their relations with the representatives abroad of the Federal agencies.

With respect to item (*b*) in your letter, on the extent to which science attachés report on developments in the life sciences, each science officer has been advised that it is his responsibility to extend his interest to all areas of science and engineering. Even though their individual scientific specialties vary, they are all considered to have a broad enough background to appreciate developments in the area of the life sciences and to understand the importance of materials in those branches of science. They are not primarily concerned with the collection of information, as explained below. However, of the 14 scientists now assigned to London, Paris, Bonn, Rome, Stockholm, New Delhi, Tokyo, Buenos Aires, and Rio de Janeiro, one is a bacteriologist and four are zoologists. Life science specialists thus constitute a significant part of the total.

Usually, a science attaché, posted abroad by the Department of State, reports on scientific developments only when, in his judgment, they have a significance for U.S. foreign policy objectives or for relations between the United States and the country of his assignment. For him, moreover, "scientific developments" mean not only specific advances in particular branches of science; they have a wider connotation. They may include such developments as attitudes abroad toward U.S. policies and the effects of these policies on foreign scientists and scientific organizations; changes in governmental science policy, in the organization and administration of science programs in government, industry, and universities, and in budgets and expenditures for scientific research and development in the country of a science attaché's assignment; and procedures to be followed in making research arrangements in a foreign country that will facilitate our scientific relations with the government of that country.

If a science attaché were responsible to a research and development organization in this country rather than to the Department of State (as many foreign science attachés are responsible to such organizations in their home countries), their primary function might be regarded as collecting and reporting information on scientific developments. Even though this is not the primary function of a U.S. science attaché, he will almost inevitably by his travels, his reading, his connections with foreign scientists, and his scientific curiosity constantly come by reports, studies, and other items of information on scientific developments that he may believe useful to U.S. Government scientists or others, and will dispatch these materials to the Department of State where they are usually disseminated to other Government scientific offices for their use.

Also, it should be indicated that, in response to a Department of State reporting requirement, missions abroad are responsible for dispatching periodic reports on developments in a number of subject-matter segments, including scientific research and development. A science attaché usually collaborates with other mission officers in the preparation of this segment of these reports.

Please call on me at any time should you desire further information on the work of the Department of State in the field of international science.

Sincerely yours,

WALLACE R. BRODE, *Science Adviser.*

THE SECRETARY OF HEALTH, EDUCATION, AND WELFARE,
Washington, D.C., February 4, 1960.

DEAR SENATOR HUMPHREY: There has been a development in the field of international health which I am certain will be of interest to you.

In view of the importance and complexity of international health programs, a series of meetings have been held to discuss the establishment of an advisory interdepartmental committee to be concerned specifically with U.S. international health activities. It was agreed that the effectiveness of U.S. participation in international health work is best maintained through close cooperation between the agencies concerned, with the fullest possible exchange of information and the joint development of program policies and objectives.

Following agreement on this principle, the Department of State decided to establish an Interdepartmental Committee on International Health Policy composed of top officials of the agencies primarily concerned. I have the honor of

serving as Chairman of this committee at the request of the Department of State. The other members who agreed to serve are Mr. James W. Riddleberger, Director of the International Cooperation Administration; Mr. George Allen, Director, U.S. Information Agency; Mr. Francis O. Wilcox, Assistant Secretary for International Organization Affairs, Department of State; and Dr. Leroy E. Burney, Surgeon General of Public Health Service of this Department.

The functions of the committee are to advise the Secretary of State on the formulation of general policy, new types of programs, and correlation of U.S. programs in the field of international health.

The work of the Interdepartmental Committee is supported by a subcommittee which, in addition to representatives from the agencies participating in the overall committee, includes staff members from other Departments and agencies having an interest in the various subjects under discussion. For example, the Department of Defense has full membership on the subcommittee.

The committee has already held a number of meetings to consider and make recommendations on matters of both immediate urgency and of long-term importance to the U.S. international health policy. I believe all of the members are agreed that this arrangement has proved to be exceedingly valuable and holds considerable promise for providing more effective planning in this important field.

Sincerely yours,

ARTHUR S. FLEMMING,
Secretary.

2. ACTIVITIES AND EXPENDITURES OF U.S. GOVERNMENT AGENCIES IN BIOMEDICAL RESEARCH

Senator HUMPHREY. There follows an agency-by-agency summary of activity in biomedical research.

It will be noted that in this section, we have brought together information not only on U.S. medical research abroad, but on related Federal agency activities within the United States as well.

There are several reasons for our assembling the domestic with the international data:

a. Tradition of International Collaboration.—As indicated in the committee's first print, "International Medical Research," research has always been international. A scientist in country A has always had the practice of drawing upon and contributing to the findings of scientists in countries B, C, and D. This is truer today than ever before.

b. Oversea Research Often Performed for Domestic Objectives.—As pointed out in the committee's second print, entitled "Statutory Authority for Medical and Other Health-Related Research in the United States Government," agencies engaged in oversea programs invariably base their activity upon the statutory authority which they have been given to carry our biomedical research for the health of the people of the United States itself.

In other words, each agency views its oversea research effort as part and parcel of its domestic effort, geared essentially to the same objective—the fulfillment of its domestic statutory mission.

When Congress recently enacted explicit authority for international medical research, it specified one of its basic purposes as being the advancement of the well-being of our own people in addition to the service of medical science throughout the world. See "Section 2—Purposes" in Public Law 86-610, the International Health Research Act of 1960 (pp. 332 ff.).

Many diseases exist abroad which are rare or not experienced within the United States. But history is rich with proof that the search for

the clues in a so-called exotic disease has led to the solution of many a disease right at home and vice versa.

In carrying out medical assistance programs abroad, need has developed for applied research, sometimes carried out domestically, sometimes overseas, in order to help make effective disease control abroad. Even though the immediate objective of the research does not have domestic application, the new information developed may have byproducts useful to the United States.

c. International Trends of Research.—In this age of high-speed transportation and communication, the trend of science is international. Increasingly, whether under official or nonofficial auspices:

1. Foreign nationals—scientists and technicians—are assisting U.S. scientists within U.S. laboratories and hospitals;

2. U.S. scientists, as part of their domestic missions, are performing research abroad, often assisting foreign scientists;

3. The two-way flow under exchange programs is becoming more and more diversified and sizable;

4. International seminars, conferences, Congresses flourish, and U.S. personnel attend them in larger numbers;

5. The international flow of research journals, monographs, audiovisual materials mounts.

d. Subcommittee's Authority for Interagency Review.—Finally, it should be noted that under Senate Resolution 255, section 4, 86th Congress, which extended our health study through January 31, 1961, explicit authority was given for a review of problems of "interagency coordination," whether of a domestic or of an international character. This authority was a natural supplement to the prior authority under Senate Resolution 347, 85th Congress. The latter provided for an "international research" study.

With seven Federal agencies engaged in international research and ten agencies engaged in or supporting national research, a natural question arises as to coordination of the two phases.

For these and related reasons, we have brought together herein useful information on domestic programs.

On August 11, 1960, the subcommittee held a hearing entitled "Coordination of Activities by Federal Agencies in Biomedical Research." Present at the hearing were the directors of research in nine Federal agencies and/or their alternates. A separate hearing volume contains the transcript of that discussion.

Contents hereinafter are designed to provide a useful companion source for that volume.

Finally, it should be noted that the Committee on Government Operations, by virtue of its uniquely broad jurisdiction, is in an invaluable position to take a Governmentwide view of all biomedical research, rather than merely a fraction of research by one or more agencies abroad or at home.

ONE-HALF BILLION DOLLARS IN FEDERAL RESEARCH

The magnitude of Federal commitment in biomedical research may be seen in the following statistics. These show that in the 1960 fiscal year, the Federal Government obligated in excess of one-half billion dollars for extramural and intramural biomedical research projects. Probably more than 98 percent of this research is conducted within the United States.

But no man could calculate the profound interrelationship between the "domestic" research and oversea scientific developments.

An analysis as to the extent of the programs in biomedical research by the various agencies would show the following:

Department of Health, Education, and Welfare—$290 million (of which the National Institutes of Health projects aggregate $260 million).

Atomic Energy Commission—$53.2 million.

Department of Defense—$48.6 million.

Department of Agriculture—$16.1 million. (This figure is based upon a USDA determination as to which projects are "regarded as having direct impact on medical science.")

National Science Foundation—$24.4 million.

Veterans' Administration—$17.3 million.

International Cooperation Administration—$927,000.

Federal Aviation Agency—$930,000.

Department of Interior—$697,000.

A. Department of Health, Education, and Welfare

The principal biomedical research arm of the Federal Government is the Department of Health, Education, and Welfare. Within the Department are a considerable number of organizations conducting research in the life sciences.

In the first committee print issued by this subcommittee, a descriptive summary was presented as to medical research, carried out by the largest research component of the department—the U.S. Public Health Service. Within PHS, as we will hereinafter refer to it, are the Bureau of Medical Services, the Bureau of State Services, and the largest of the research organizations, the National Institutes of Health.

The issue of coordination between the oversea phases of all of the numerous PHS units involved in research has been a matter of deep interest to the subcommittee. NIH's role is the most significant and all-inclusive, but non-NIH units also can and do make important oversea contributions. That is true, as well, of units within the Department outside the Public Health Service whose international role will, I believe, and should, be strengthened in the future, so long as it is properly coordinated.

Table 2 which follows summarizes all oversea expenditures within the Department. It includes, it should be noted, both oversea health assistance and research. The need for coordination between nonresearch and research programs is suggested by the diversity of the international programs involved.

TABLE 2

INTERNATIONAL EXPENDITURES FOR MEDICAL RESEARCH AND ASSISTANCE BY DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, 1959 FISCAL YEAR [1]

Public Health Service:	
Office of the Surgeon General:	
Division of International Health	$148,100
Coordination and consultation in the development and maintenance of PHS relationships with other Federal and international organizations in the field of international health.	
National Institutes of Health:	
International research activities, total	3,166,000
Research grants to foreign nationals	2,870,000
Research contracts with foreign institutions	97,000
Direct research activities outside the United States	199,000
Interchange of scientific personnel, total	2,239,100
U.S. fellows abroad	605,500
Foreign fellows in United States	340,900
Visiting scientists at the NIH	1,034,400
Training grants to foreign institutions	30,300
Traineeships to foreign nationals	228,000
Interchange of scientific personnel, total	378,000
Russian scientific translation program	378,000
International scientific assemblies, total	[2] 463,600
Grants to sponsoring organizations for direct support of international meetings	395,600
Direct travel of NIH scientists to international meetings	68,000
Administrative costs	60,000
Total, National Institutes of Health	6,306,700
Total, Public Health Service	6,454,800
Office of Vocational Rehabilitation:	
Research and demonstration grants:	
Excerpta Medica Foundation	22,357
International Society for the Welfare of Cripples	10,000
American Congress of Physical Medicine and Rehabilitation	7,500
World Federation for Mental Health	28,500
Gallaudet College	4,988
Fellowships	5,000
Total, Office of Vocational Rehabilitation	78,345
Total, Department of Health, Education, and Welfare	6,533,145

[1] After this table had been set in type, the subcommittee received information for the comparable total for the 1960 fiscal year for the Department of Health, Education, and Welfare: $9,751,215 (of which NIH international research activities, as such, aggregated $5,781,000 and interchange of scientific personnel $3,152,000).

[2] Excludes travel to international meetings by research grantees.

FOREIGN CURRENCY FOR OVERSEA ACTIVITIES

The following provisions should be noted in the appropriation law for the 1961 fiscal year for the Department of Health, Education, and Welfare, Public Law 86–703, approved September 2, 1960. These provisions make available foreign currencies for oversea activities by the National Institutes of Health and the Office of Vocational Rehabilitation, respectively:

National Institutes of Health

SCIENTIFIC ACTIVITIES OVERSEAS (SPECIAL FOREIGN CURRENCY PROGRAM)

For purchase of foreign currencies which accrue under title I of the Agricultural Trade Development and Assistance Act of 1954, as amended (7 U.S.C. 1704), for the purposes authorized by section 104(k) of that Act, to remain available until expended, $3,707,000, of which not less than $3,459,000 shall be available to purchase currencies which the Treasury Department shall determine to be excess to the normal requirements of the United States: *Provided*, That this appropriation shall not be used for the purchase of currencies available in the Treasury for the purposes of section 104(f) of such Act, unless such currencies are excess to the normal requirements of the United States.

Office of Vocational Rehabilitation

RESEARCH AND TRAINING (SPECIAL FOREIGN CURRENCY PROGRAM)

For purchase of foreign currencies which accrue under title I of the Agricultural Trade Development and Assistance Act of 1954, as amended (7 U.S.C. 1704), for the purposes authorized by section 104(k) of that Act, to remain available until expended, $930,000, of which not less than $780,000 shall be available to purchase currencies which the Treasury Department shall determine to be excess to the normal requirements of the United States: *Provided*, That this appropriation shall not be used for the purchase of currencies available in the Treasury for the purposes of section 104(f) of such Act, unless such currencies are excess to the normal requirements of the United States.

In this connection, it should be noted that in accordance with U.S. agreement with various foreign countries, a total of $6.5 million had been make available as of June 30, 1960, under section 104k of Public Law 480 for the support of scientific and technical activities overseas. Of that sum the Bureau of the Budget had transferred to agencies' accounts the sum of $4 million.

Use of section 104k represents one of the relatively smallest amounts allocated under any of the provisions of Public Law 480 from sections 104a through 104o.

1. DIVISIONS OUTSIDE PUBLIC HEALTH SERVICE

Senator HUMPHREY. At this point there is listed a summary of those research activities—almost exclusively domestic—which are currently supported by the Department of Health, Education, and Welfare outside the U.S. Public Health Service. This domestic-type data is presented for ready reference and for the background purposes previously mentioned.

These tables cover the Social Security Administration, the Office of Education, the Food and Drug Administration, and the Office of Vocational Rehabilitation.

The tables were transmitted by the Honorable Arthur S. Flemming, former Secretary of Health, Education, and Welfare.

TABLE 3

RESEARCH PROJECTS IN DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE (OUTSIDE PUBLIC HEALTH SERVICE)

Social Security Administration—Children's Bureau

Research in Life Sciences, Fiscal Year 1960

Appropriation title	Amount	Remarks	Organizational unit and responsible program officer
Research grants:			
Grants to States for maternal and child welfare	$160,000	5 grants are being supported in medical and health-related research in field of maternal and health services.	Children's Bureau; Director, Division of Health Services.
Do	240,000	5 grants are being supported in medical and health-related research in the field of crippled children's services.	Do.
Direct research: Salaries and expenses, Children's Bureau.	100,000	Research activities in the fields of maternal and child health and health services for mothers and children.	Children's Bureau; Director, Division of Research.

Office of Education, Research Activities, Fiscal Year 1960

Appropriation title	Amount	Remarks	Organizational unit and responsible program officer
Cooperative research program		The cooperative research program is administered under Public Law 531 (83d Cong.). Research conducted by colleges, universities, and State departments of education is as follows:	Dr. Roy M. Hall, Assistant Commissioner for Research, and Dr. David L. Clark, Director of the Cooperative Research Branch.
	[1] $3,200,000	Fiscal year 1960. (There will have been approximately 271 cooperative research projects contracted during fiscal years 1957–60.)	
Language development program		The language development program is administered under title VI of the National Defense Education Act of 1958, Public Law 864 (85th Cong.). The obligation for the conducting of research by public and nonprofit agencies is as follows:	Dr. Homer Babbidge, Jr., Assistant Commissioner for Higher Education, Dr. Peter P. Muirhead, Director of the Financial Aid Branch, and Dr. Kenneth W. Mildenberger, Chief of the Language Development Section.
	92,296	Fiscal year 1960. (There were 4 contracts awarded in FY 1960.)	
Educational media program		The mass media program is administered under title VII of the National Defense Education Act of 1958, Public Law 864 (85th Cong.). The obligation for conducting of research by public and nonprofit agencies is as follows:	Dr. Roy M. Hall, Assistant Commissioner for Research, and Dr. C. Walter Stone, Director of the Educational Media Branch.
	2,665,000	Fiscal year 1960. (There have been approximately 85 grants awarded in FY 1960.)	

[1] Estimated.

[1] Estimated.

Food and Drug Administration—Research activities, fiscal year 1960

Appropriation title	Amount	Remarks	Organizational unit and responsible program officer
Research and methodology	$3,800,000	Research and methodology include methods development for analyses for food additives, pesticides, food components, drugs, cosmetics; investigations on the toxicity of food and drug and cosmetic coal tar colors, food additives, pesticides, and other potentially toxic substances; fundamental research on metabolism of coal tar colors, pesticides, and other added and natural food, drug, and cosmetic components.	Mr. George P. Larrick, Commissioner.

Office of Vocational Rehabilitation, research activities, fiscal year 1960

Appropriation title	Amount	Remarks	Organizational unit and responsible program officer
Research and training: Research and demonstrations	$6,500,000	These activities provide partial support for approximately 225 research, demonstration, and special facility projects which hold promise of making a substantial contribution to the solution of vocational rehabilitation problems common to all or several States.	Office of Assistant Director for Research and Training, Chief, Division of Research Grants and Demonstrations.

2. PUBLIC HEALTH SERVICE—OUTSIDE NATIONAL INSTITUTES OF HEALTH

The following table summarizes the number of research projects (again almost exclusively domestic) and their dollar volume in the Public Health Service, outside the National Institutes of Health.

TABLE 4.

RESEARCH PROJECTS IN PUBLIC HEALTH SERVICE (OUTSIDE THE NATIONAL INSTITUTES OF HEALTH)

(Fiscal year 1960)

Appropriation title	Amount	Remarks	Organizational unit and responsible program officer
Research grants:			
Sanitary engineering activities	$450,000	Approximately 15 grants are supported in the field of air pollution.	Bureau of State Services, Chief, Division of Engineering Service.
Grants for hospital construction	1,000,000	32 grants are supported in research into improved hospital services, facilities, administration, etc.	Bureau of Medical Services, Chief, Division of Hospital and Medical Facilities.
Direct research:			
Assistance to States, general	1,020,900	(16) Research activities in the fields of health of the aged and chronic disease, occupational health, and accident prevention.	Bureau of State Services, Chief, Division of Special Health Services.
Control of venereal diseases	813,000	(8) Clinical and laboratory research	Bureau of State Services, Deputy Chief, Communicable Disease Center, Atlanta, Ga.
Control of tuberculosis	1,811,100	(6) Cooperative applied research	Bureau of State Services, Medical Director and Chief of Tuberculosis Program, Division of Special Health Services.
Communicable disease activities	6,077,000	Disease prevention and control and Arctic health research (65) Communicable Disease Center. (29) Arctic Health Research Center.	Bureau of State Services, Chief, Communicable Disease Center, Atlanta, Ga.
Sanitary engineering activities	5,315,600	(34) Research activities in the fields of air pollution, water supply and water pollution control, radiological health, and milk and food.	Bureau of State Services, Director, Sanitary Engineering Center, Cincinnati, Ohio.
Grants for hospital construction	200,000	(4) Research into improvement of hospitals	Bureau of Medical Services, Chief, Division of Hospital and Medical Services.
Hospitals and medical care	419,500	(8) Nursing resources	Bureau of Medical Services, Chief, Division of Hospitals.
Salaries and expenses	2,069,600	(29) Public health methods and reports	Office of the Surgeon General, Chief, Division of Public Health Methods.

It should be pointed out that many of these domestic research activities of the Public Health Service are noted throughout the world as models in their respective fields. Inevitably an organization such as the Communicable Disease Center in Atlanta, Ga., has come to play an important international role in many connections, e.g., training foreign nationals and in sending cosultants for international purposes.

3. NATIONAL INSTITUTES OF HEALTH

Senator HUMPHREY. At this point, we refer to the principal biomedical research arm of the U.S. Public Health Service and of the U.S. Government as a whole—the National Institutes of Health.

In keeping with its significance, no single organization within the Federal establishment has been more helpful in the subcommittee's review than the National Institutes of Health.

For the 1960 fiscal year, it is estimated that NIH supported 10,564 intramural and 1,501 extramural research projects, aggregating $209 million and $51 million, respectively.

A. Summary of Responsibility for Analysis of Total National Resources

During the subcommittee's study, much extremely valuable information has been compiled in our behalf by NIH's Office of Research Planning, in particular.

Under date of April 9, 1959, Mr. Joseph Murtaugh, Acting Chief, conveyed, at our invitation, a brief memorandum with regard to the responsibility of the National Institutes of Health for analysis of the Nation's total medical and health-related research resources.

This analysis follows, together with a table, entitled "Federal Government expenditures for medical and health-related research, fiscal years 1947–60."

This table, depicting year-by-year totals for principal agencies during the 13-year period was prepared by NIH and transmitted by request to Mr. I. M. Labovitz, senior specialist in welfare, Legislative Reference Service, Library of Congress. Mr. Labovitz is developing comprehensive budget data on U.S. health expenditures for the subcommittee, as previously noted.

Memorandum on NIH responsibilities for analysis of the Nation's total medical and health-related research resources

Background.—The need for the development of continuing systematic data on all aspects of the Nation's resources devoted to medical research has long been recognized. NIH supports over one-third of the Nation's medical research. To plan our own programs intelligently and to assist others to do likewise, it is essential that NIH be fully informed of the resources and requirements for the Nation's (and international) total medical research effort. Noting this fact, the Senate Appropriations Committee in its report on the 1958 appropriation encouraged and directed the National Institutes of Health to strengthen its analytical activities in this direction.

Within NIH, responsibility is centered in the Office of Research Planning for the study, measurement, analysis, and reporting of data on the private and public resources involved in the support, conduct, and servicing of medical research. This Office bears primary responsibility for the development of quantitative information pertaining to medical research expenditures, manpower resources and requirements, and facilities on both the national and international scene.

Scope of medical research.—NIH views medical research as a broad program area concerned primarily with the improvement of human health and the conquest of human disease. Within this broader context, medical research includes all systematic study directed toward fuller scientific knowledge of: (*a*) the causes, diagnosis, treatment, control, and prevention of physical and mental diseases and other killing and crippling impairments of man; (*b*) the origin, nature, and solution of health problems not identifiable in terms of disease entities; (*c*) broad fields of science important to or underlying disease and health problems; and (*d*) improved methods, techniques, and equipment for research, diagnosis, and medical care. It encompasses clinical investigations, clinical trials, laboratory research, epidemiological studies, and engineering studies. It draws upon all fields of science and many disciplines within each field.

Method of operation.—In carrying out the responsibilities noted above, primary reliance is placed upon—

1. Developing data from the records and reports employed in the conduct of the NIH research grant and intramural programs.
2. Initiating, encouraging, and utilizing centralized data sources such as the Bio-Sciences Information Exchange.
3. Advising other Federal agencies of our needs and attempting to build our minimal data requirements into their continuing surveys. When this approach fails, the next step is negotiation for specialized coverage (at our expense, if necessary) within the context of overall surveys.
4. Stimulating and encouraging the American Medical Association, the Association of American Medical Colleges, the American Hospital Association, and similar organizations to develop and maintain continuing series on matters of mutual interest. These organizations have expressed a genuine interest in the development of our program and have offered to help in every way possible.
5. Encouraging and undertaking surveys where other approaches fail to satisfy fully our requirements. This is most likely to be required for areas of primary concern to NIH, such as medical schools, hospitals, and clinics, State and local health research programs, voluntary health agencies, Federal medical facilities and research centers, the pharmaceutical industry, and nonprofit medical research institutes.

GOVERNMENTWIDE ANALYSES ON SUPPORT

Senator HUMPHREY. NIH's analytic work is, in my judgment, serving a vital objective. The greatest possible agreement should, I feel, be reached among all the Federal agencies which are involved as to additional and more detailed tools of analyses which they may need for planning of future domestic and oversea support.

NIH has prepared valuable analyses as well on its oversea support (see p. 309). Evidence before the subcommittee suggests that it would be well to add to such NIH analyses the data on international support—use of both dollars and foreign currencies—by all other agencies (e.g., Department of Agriculture, Department of Defense, etc.). Such combined figures might show the level of overall support, classified as to foreign country, institution, and biomedical discipline.

The combined analyses could be supplemented by comparable analyses as to (*a*) oversea support by U.S. nongovernmental organizations; (*b*) support given by foreign nations and their nongovernmental organizations to their own and other institutions.

In effect, what is needed, evidence to the subcommittee suggests, is a series of worldwide "baselines" on biomedical research support. WHO could serve an invaluable role in this analytic process (see p. 659).

NIH's table of Federal agency support (almost exclusively domestic in nature) follows:

TABLE 5

FEDERAL GOVERNMENT EXPENDITURES FOR MEDICAL AND HEALTH-RELATED RESEARCH, FISCAL YEARS 1947–60

(Thousands of dollars)

Agency	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	Estimated, 1959	Estimated, 1960
Total	28,128	39,442	50,614	60,040	73,329	78,869	96,047	106,892	119,145	135,728	196,793	241,812	313,968	326,461
Atomic Energy Commission [1]	7,500	8,600	9,800	11,850	11,950	13,913	16,960	17,313	18,713	19,185	21,003	22,775	27,983	31,662
Department of Defense	8,776	9,084	11,710	11,226	21,054	22,100	24,695	26,334	26,156	23,157	22,615	23,640	24,240	25,520
Health, Education, and Welfare	10,459	19,126	24,833	32,664	36,325	38,863	48,980	57,460	67,667	85,476	142,829	182,082	239,415	246,766
National Science Foundation [2]						113	174	334	762	1,002	2,346	3,000	8,100	10,880
Veterans' Administration	1,393	2,632	4,271	4,300	4,000	3,872	5,091	5,343	5,575	6,471	7,707	9,976	13,605	11,005
Other						8	147	108	272	437	293	339	625	628
Federal Aviation Agency							95	68	245	348	101	120	265	268
Department of State							25	23	23	21	23	15	10	10
Office of Civil and Defense Mobilization							27	17	4	68	165	200	350	350
Tennessee Valley Authority						8					4	4		

[1] Includes half of research expenditures in the biological sciences reported for publication in "Federal Funds for Science."

[2] Estimated portion of research expenditures in the biological sciences which may be construed (based upon subject matter orientation of projects) as medical and health related.

Source: 1947–51: Information obtained by National Institutes of Health directly from agencies, using guidelines subsequently employed in "Federal Funds for Science" series. 1952: Irving Ladimer, "Trends in Support and Expenditures for Medical Research, 1942–52," Public Health Reports, vol. 69, No. 2, February 1954, p. 118. 1953–57: Based upon information published in "Federal Funds for Science" series. Includes all R&D expenditures of constituent agencies of Department of Health, Education, and Welfare (excluding Office of Education). For all other agencies, includes research expenditures reported as "medical sciences." 1958–60: Information obtained by NIH directly from agencies.

B. International Activity

Senator HUMPHREY. Each year, the obligational authority proposed for NIH is carefully reviewed by subcommittees of the House and Senate Committees on Appropriations for the Department of Health, Education, and Welfare. These subcommittees are headed respectively by Senator Lister Hill and Congressman John Fogarty. I know of no two experts in the Congress better informed on the work of an agency within their jurisdiction than these able legislators.

Our own subcommittee has sought to minimize the possibility of overlapping with the analyses made by Senator Hill and Congressman Fogarty and by their expert subcommittees. Therefore, in our contact with the Institutes pursuant to Senate Resolution 347, 85th Congress, we have concentrated by and large on specialized aspects of the Institutes' program—procedural, organizational, and otherwise.

1. Comments by Senate Consultive Committee on National Institutes of Health International Programs

As indicated in part III, page 1215, our subcommittee has consulted as much prior literature on subjects within its jurisdiction as possible.

One of the most valuable and expert such publications was the expert report issued in May 1960 by a distinguished Committee of Consultants on Medical Research to the Subcommittee on Departments of Labor and Health, Education, and Welfare, of the Senate Committee on Appropriations. This 133-page report was entitled "Federal Support of Medical Research." The report was issued under the chairmanship of Boisfeuillet Jones who now serves as Special Assistant for Health and Medical Affairs to Secretary of Health, Education, and Welfare, Abraham Ribicoff, in which capacity he has cooperated with us very closely.

So that this reference volume, in turn, might be complete, there follow those excerpts from the report bearing upon international medical research.

[Excerpts from consultants' report, "Federal Support of Medical Research," pp. 96–99]

INTERNATIONAL MEDICAL RESEARCH

The dread diseases know no geographic boundaries and the research on these great problems should therefore be truly international. The contribution which talented scientists abroad can make in this field has been severely limited in many cases by lack of funds. The committee believes that the efforts of these foreign investigators should be enlisted in the fight on major disease problems to the greatest extent possible.

The present support of research grants to investigators in foreign countries is carried out through the categorical institutes and the Division of General Medical Sciences. Approximately $3 million will be expended for such projects in fiscal year 1960. For most of these, the principal criterion governing award has been that the research proposed, because of factors of geography, population, disease incidence, disease vectors, etc., could not be carried out as satisfactorily within the United States. However, many foreign investigators have important creative ideas and talent to contribute to the attack on major disease, and less restricted support is important if their help is to be obtained. The committee recommends an increase in total level of support of foreign research grants through the categorical institutes to $10 million, an increase of $7 million over the level for fiscal year 1960. These funds should be awarded by the National Institutes of Health after critical scientific evaluation by study sections and councils and after subsequent special review by an administrative unit for the international medical activities of the National Institutes of Health, such as that proposed on pages 61–62. The National Institutes of Health should supplement the support given outstanding foreign investigators by their native coun-

tries when this is inadequate, and when U.S. funds can be given without disturbing the structure of support of scientific research in the foreign countries involved. In this effort close collaboration should be fostered with such international organizations as the World Health Organization and the Pan American Sanitary Bureau.

The exchange of information and opinions on medical research between scientists of different countries is one of the firmest bases on which to build bridges of international cooperation and understanding. This has so far offered the best hope in our relationships with countries behind the Iron Curtain, as the success of the cultural exchange missions in the medical field has shown. The committee believes that these exchanges should continue and be extended under the auspices of the Public Health Service.

In addition, they believe that the National Institutes of Health has a responsibility to exert forceful leadership in promoting the exchange of medical research information and in affording opportunities for medical scientists of different countries to meet together under suitable circumstances on subjects of international interest and concern.

In spite of the extensive participation of the United States in international medical affairs and the desirability and probability that this involvement will increase, there is no place in the United States available for the efficient conduct of medical meetings, symposia, and working seminars attended by nationals of different countries. While the National Institutes of Health is a medical research center which attracts hundreds of people from foreign countries every year, it has no facilities equipped for simultaneous translation and suitable conduct of this important aspect of medical research. As a consequence, full advantage cannot be taken of the knowledge of many experts who lack the ability to present lectures and participate in give-and-take discussions in the English language. An international medical research facility, equipped for simultaneous translation of conferences, with rooms of different sizes for various working groups, lounges for informal discussion, a cafeteria, and dormitory-type bedrooms for visiting scientists would not only serve an urgent operating need, but would also be a symbol of the participation and leadership of this country in international medical affairs.

Recommendations

(1) *Support of international medical research.*—Research in foreign countries as a resource in the attack on the dread diseases should be supported by the National Institutes of Health after scientific evaluation through the accepted mechanisms of review, with subsequent special consideration by a group with broad knowledge of the structure of support of medical research abroad. The amount of such support should be raised to a level of approximately $10 million in fiscal year 1961 and should be increased in subsequent years as the administrative structure can be developed to handle the special problems involved.

(2) *Development of international medical conference center at the National Institutes of Health.*—Careful consideration should be given to the planning of an international medical conference building on the National Institutes of Health campus which would serve as a center for international medical activities. This facility should provide for a large auditorium and smaller meeting rooms with simultaneous translation facilities, lounges, dining facilites, and dormitory-type bedrooms for visiting scientists. The building could also include offices for those directly concerned with the administration of international medical research affairs of the National Institutes of Health.

2. International Visitors to National Institutes of Health

Senator HUMPHREY. As indicated above, one of the phases which the Jones consultative committee reported upon was the important service of NIH as host to international visitors and conferences. It is interesting that our own subcommittee, from its inception in August 1958, explored many of the phases of this same visitors problem as were touched upon in the May 1960 report by the Jones committee.

Indicative of that fact was the information compiled earlier in 1960 by the project director of our study. This information was first obtained in a series of discussions with staff of the National Institutes

of Health. Various questions were considered as regards arrangements and accommodations at NIH for foreign visitors.

Pursuant to the project director's request, additional facts were compiled on this phase of international work. The following memorandum of March 1960 incorporates preliminary information based on these discussions. No formal recommendation on the part of NIH is made or implied herein, since an official policy statement was not asked; there were merely informal observations by staff members.

MEMORANDUM ON INTERNATIONAL SCIENTIFIC VISITORS TO THE NATIONAL INSTITUTES OF HEALTH, MARCH 1960

I. Introduction

One of the important factors in the healthy development of a research institution lies in the kind and number of those professionally interested people who visit the institution. The purposes of their visits and the length of their stays will, of course, vary widely. But all will have this in common: they come to participate in the life of the research institution, to acquire knowledge, or to contribute it.

The National Institutes of Health is the principal research arm of the Public Health Service, U.S. Department of Health, Education, and Welfare. Its obligation, under law, is the conduct and support of research training and related activities for the ultimate objective of the improvement of health. As an essential means of reaching that objective, there are both tacit and explicit responsibilities charged to NIH to serve as a national and international resource for the gathering and disseminating of scientific information.

It is recognized that knowledge will be advanced and health benefits brought to our own people and to others around the world if NIH provides adequate resources for scientists from here and abroad for worthwhile investigations, interchanges of research information, and collaborative participation in research training and other means of furthering medical science.

NIH, young in its present structure as a still-developing scientific institution but rich in a lineal tradition of Public Health Service research, has been fortunate in that many scientists and students, domestic and foreign, have visited it, taken part in its activities, and enriched its environment.

II. Summary

Each day of the year, about five scientists from other countries arrive at NIH for visits ranging from a few hours to several days, weeks, or months.

Three out of five of these scientists come essentially unannounced. Their visits are not planned for in advance, although in some instances their visit is preceded by a letter or telephone call from such sources as embassies, other agencies of the U.S. Government, other components of the Public Health Service or Department of Health, Education, and Welfare, research institutions, scientists here or abroad, relatives, and so on.

Two of these five professional visitors from abroad *usually* reach NIH after some advance planning, on their part or that of some sponsoring agency, in which NIH research staff has participated. This makes their stay much more likely to be fruitful from all standpoints, because specific knowledge of the individual's interests permits arrangements for better interchange of information between him and colleagues in his particular field.

The word "usually" is emphasized above, however, because even in hundreds of instances of prearranged visits adequate preparation has not been made and the resulting benefits to the visitor and his hosts are far from being as great as they would be if more specific information as to his interests had been made available prior to his arrival.

The figures speak for themselves: some 2,000 scientific researchers arriving in a twelvemonth—over half almost unannounced and many of the others not well prepared for.

A basic assumption is that NIH can and should serve as both a national and an international resource for medical research, in keeping with the intent of the Congress in enabling and appropriations legislation and with the desires of the executive branch in the execution of this legislation.

First, it is clear that the number of international professional visitors not only is large but also is increasing and may reasonably be expected to increase even more in coming months and years.

Next, as a corollary, NIH is receiving more and more domestic visitors—an estimated 15,000 last year.

All but a few thousand of the 15,000 were people with professional interests. There is, of course, a wide range of these interests: from student nurses and science students to physicians, hospital administrators, and scientists from every field and discipline of medical research.

There are two related facts to be stressed initially. One is that there are, at present, over 100 visiting scientists from abroad engaged in research work at NIH, work ranging from periods of months to several years. There are, too, a number of foreign guest research workers, employing their talents at NIH for shorter periods. The other fact is that there are many visiting scientists and research guest workers from all over the United States at NIH.

In the past decade or so, the Federal legislative and executive branches have clearly intended that NIH become a growing resource of the United States for the development and interchange of scientific information nationally and internationally. Activities to achieve this purpose, while they are far from having as yet realized the full potential inherent in this mission, are substantial and represent a sound beginning.

III. The visiting program for scientists from abroad

The scope and quality of medical research conducted in the United States in the last decade has firmly established this country in a ranking position in medical science and medical teaching. As a direct consequence, U.S. universities, medical schools, teaching hospitals, and commercial laboratories are attracting ever-increasing numbers of medical scientists, teachers, and students from every quarter of the globe. They come not only to observe and learn but also to impart their own special knowledge to their American colleagues.

Since its origin in the last quarter of the 19th century, NIH has figured importantly in the direct interchange of knowledge, problems, ideas, and techniques between medical scientists on a worldwide basis.

The development in the past few years of extensive programs and facilities for clinical research at NIH substantially increased the scope of this contribution to the advancement of health research. The size and importance of the NIH visiting scientist program have been increasing. Its scope at present is reflected, for example, in the fact that there are currently over 100 visiting scientists at NIH.

Nature of program.—Through the NIH visiting scientist program, medical research with emphasis upon training values is conducted by American scientists abroad and by foreign scientists in this country. While the contributions of U.S. scientists working abroad under this program are many and while the knowledge they bring back to our shores is considerable, this report is largely confined to that aspect of the program which brings foreign visiting scientists to NIH.

The visiting scientist program is a flexible arrangement for inviting American and foreign scientists with very special qualifications to participate in the utilization of NIH laboratory and clinical resources. Participants must have a doctoral degree or its equivalent in scientific background, at least 6 years of postgraduate experience, and exceptional ability in a specific research area of importance to the programs of NIH.

The purposes of the program, besides that of seeking new knowledge useful for the conquest of disease, are to increase the utility of NIH as an international scientific resource, to strengthen relations and the interchange of information with the broader scientific community here and abroad, and to advance particularly complex research.

Scientists who participate in the program are leaders in their fields of specialized knowledge or skill. During their tenure, they observe and consult, they lecture and discuss with researchers here, and they work in advanced research where their depth of background and fresh viewpoints may make invaluable contributions. As a result, both NIH and the visiting scientists—and eventually all of medical science itself—benefit from this sharing of knowledge and skills.

Noted scientists participate.—Among the more than 300 visiting scientists who have participated in this NIH program since it began (and they have

come from some 40 different countries around the world), there are many whose names are high in the ranks of medical research in the world.

Among them, for example, have been Nobel Prize winners such as Drs. Otto Warburg, Bernardo Houssay, and Albert Szent-Gyorgyi.

Dr. Warburg, director of the Kaiser Wilhelm Institute for Cell Physiology in Berlin-Deblem, came to the United States under the auspices of the U.S. Army and the National Institutes of Health in 1949. Noted for his studies on the chemistry of cell respiration, he had received the Nobel Prize award in medicine in 1931. While at NIH, in addition to research work and consultation, he lectured on a number of subjects.

Dr. Szent-Gyorgyi, noted Hungarian chemist, came to NIH in 1948, and he and colleagues of the Institute for Muscle Research, Marine Biological Laboratory, Woods Hole, Mass., where he has since been Director, have made many contributions in collaboration with NIH researchers. Among other awards, he has received the Nobel Prize in medicine, in 1937, and is famed for his work in the chemical physiology of heart muscle.

Dr. Houssay, director of the Instituto de Biologia Y Medicine Experimental in Buenos Aires, Argentina, is an outstanding authority on endocrinology. In 1947, he won the Nobel Prize for his work on the relationship of the pituitary gland to diabetes and carbohydrate metabolism. He was a visiting scientist at the National Institute of Arthritis and Metabolic Diseases in 1949 and 1953. During both visits, Dr. Houssay worked on the pituitary in relation to carbohydrate metabolism and on pituitary diabetes. He collaborated with Dr. Evelyn Anderson and Dr. Robert W. Bates of the National Institute of Arthritis and Metabolic Diseases, and as a result of the work three papers were published in scientific journals.

From Birmingham University, England, a noted pharmacologist and psychiatrist, Dr. Joel Elkes, was invited to work with the National Institute of Mental Health staff. He organized and heads a Clinical Pharmacology Research Center for investigating mode of action and other aspects of pharmacological agents and other drugs that affect mental function. The center is a collaborative effort of the NIMH and St. Elizabeths Hospital, of which Dr. Elkes is also Director of Research.

Future and needs.—The stature of foreign visiting scientists and the nature of their contributions is indicated by the few examples cited above, and many others could be mentioned. The program is one that has demonstrated sound growth and that, though relatively small, constitutes a highly significant part of the overall activities of NIH. It can safely be said that the program will continue to develop soundly and will be of increasing importance.

Realistically, however, important problems and very real and pressing needs must be met if the visiting scientist program is fully to meet its objectives and attract and maintain the highest calibre of scientific personnel.

Restricting factors, such as the availability of physical facilities, salary level, travel and dependents' allowances, housing advice and assistance, and the need for provision of more adequate means for stimulating, encouraging, developing, and assaying potential candidates should, among other things, warrant more intensive and extensive study and consideration. The current program has been initiated and brought to its present level of development to a large extent by the assignment of additional duties to staff at the NIH already occupied with other responsibilities. But there is a need for considering now how the visiting scientist program of the NIH may be strengthened and improved along with other activities involved in the matter of visitors who can contribute much to the advancement of knowledge useful in the research attack on disease.

Internationals at NIH under the visiting program

Fiscal year	Number of visiting scientists	Number of countries
1957	76	27
1958	91	37
1959	125	41

IV. The guest worker program

The guest worker program, less formalized than the visiting scientist program, differs also in that sometimes the guest researcher remains at NIH for shorter periods than those who are participating through the visiting scientist program. Moreover, guest workers receive no salary or stipend from the NIH, though they are, of course, provided with requisite facilities.

Many distinguished investigators have come to the NIH under the guest worker program. In these instances, the laboratory and clinical facilities of the Institutes are made available to workers whose home institutions provide partial support.

A major benefit to scientists in this country from this research activity has been its provision of the opportunity to learn recently developed, valuable techniques and to evolve investigative programs in consultation with both domestic and foreign nationals of eminence.

There are some 20 guest workers at the NIH at the present time, and several hundred research workers have participated in investigative work at NIH under this program.

To some extent, the guest worker program is characterized by difficulties similar to those mentioned in connection with the visiting scientist program. Also, as in that case, the program is limited by NIH resources—such as space and facilities—at Bethesda.

V. Post-doctoral research fellowships

The development of research in medicine and biology has been strengthened in this country by periods of study and research spent by citizens of the United States in the laboratories of other countries. For many years the NIH has helped to finance this productive interchange—and the program continues today as one of the essential elements of the total NIH activity.

It became possible in 1958 to extend the U.S. Public Health Service research fellowship program through the award of a limited number of fellowships to highly qualified scientists from outside the United States to work in medical and biological laboratories of this country—in institutions of their choice and by mutually agreeable arrangements. The program has been highly successful and is growing.

The research training of these scientists from other countries gives them also the chance to share knowledge with kindred groups here. The fellows, as well as the host laboratories, are benefiting from this exchange of knowledge and techniques. Among requirements for candidacy are the doctoral degree or its equivalent, demonstration of outstanding research promise, nomination of appropriate national research organizations of the candidate's country, and acceptance by the laboratory in the United States at which the candidate proposes to train.

This program is mentioned here because, although most of these research fellows are located in institutions other than NIH, several have chosen the Institutes for their training. Furthermore, all candidates are cordially invited to visit the NIH for a brief period en route to the sponsoring laboratory or at the end of the fellowship period, and a great many have availed themselves of this opportunity.

VI. Short-term scientific visitors

Since its founding days in the last quarter of the 19th century, NIH has figured importantly in the direct interchange of knowledge, problems, ideas, and techniques between medical scientists on a worldwide basis.

With postwar rise of NIH as a symbol and concrete expression of U.S. medical science, the role of NIH in this scientific interchange process has become of major importance. The development in the past 6 years of extensive programs and facilities for clinical research at NIH has substantially increased the scope of this contribution to the advancement of worldwide medical science.

An analysis of registered professional visitors for a recent 6-month period reveals that a total of 375 foreign visitors came to NIH from 54 countries. The analysis was made by staff of the clinical center, principal focus for both international and domestic visitors.

Among the foreign visitors were many distinguished clinical and laboratory scientists, Ministers of Health, Surgeons General, and medical science edu-

cators. Although in most instances their visits lasted only a day or two, a number requested and were granted permission to remain as observers for periods ranging from 3 or 4 days up to a month or more.

An idea of this international interest may be gained from the fact that leading scientists, physicians, and educators visited NIH from all quarters of the globe. Among the countries from which they came are Norway, Denmark, Sweden, Israel, Canada, Argentina, French Equatorial Africa, Jamaica, Brazil, Union of South Africa, West Germany, France, England, Scotland, Finland, Poland, Chile, Pakistan, Mexico, Austria, Egypt, Holland, Sudan, Japan, Ireland, Australia, Goa, Ceylon, U.S.S.R., Costa Rica, Indonesia, Belgium, China, Greece, Philippines, Venezuela, Ghana, Czechoslovakia, Jugoslavia, Vietnam, India, and Thailand.

VII. Conclusion

The constantly increasing number of professional, scientific visitors is an important problem for the NIH in its discharge of responsibilities for this aspect of the total program. While the subject of visitors from abroad cannot be considered apart from that of domestic guests, as indicated previously, the concern of this report is with the former. It is estimated that 2,000 or more international visitors came to NIH in 1959, and this year will undoubtedly see an increase in this number. Meanwhile, it can be expected also that the number of domestic visitors with professional interests will be larger in 1960.

Adding to the problem is the fact that, while there has been little increase in space and facilities and staff for visitor services, more and more requests—from individuals and scientific and professional organizations—are being made for visits to be made and meetings held at NIH. The year 1960 will see, for example, half a dozen or more international scientific conferences and symposia held at NIH.

Furthermore, NIH has inevitably had to accept some of the aspects of a teaching institution, such as holding seminars and short courses, although its facilities and staff responsibilities have been primarily designed otherwise. This factor complicates the visitor problem and suggests new studies, approaches, and planning.

These things are stated as pertinent to the whole problem of visitors to NIH, rather than specifically to the subject of this report, because they must be regarded as essential background in considering carefully the matter of scientific visitors from abroad.

With respect to these, it has been suggested that there is perhaps an even larger number (than the estimated 2,000 in 1959) who did not come to NIH because they do not understand the mechanisms for such visits or because of limitations in the available mechanisms, support, and facilities for handling such matters.

The NIH has naturally not been unconcerned about the matter and has given it serious attention, individually by many staff members and as an organization by ad hoc and continuing committees. Much has been accomplished through these efforts, and the international scientific visitor activity of NIH has, in general, grown in quality and scope.

On the whole, the information gathered into this report reflects a need for further inquiry. As well, it presents a picture of the NIH as a focus of considerable and rapidly increasing attention and interest on the part of a widening scientific audience around the world.

3. Correspondence with Dr. James A. Shannon

Senator HUMPHREY. As indicated above, there have been, over a period of many months numerous conferences with the institutes' staff on diverse international phases of the institutes' work.

In order to help crystallize additional information which has been gained during this period, I wrote to Dr. James A. Shannon, Director of the National Institutes of Health, on October 1, 1959. With my letter, I conveyed a memorandum containing a series of specific questions on international phases over and above those already noted. Dr. Shannon responded with a helpful and comprehensive memorandum.

Reprinted below are the texts of (*a*) my inquiry to Dr. Shannon and (*b*) his report.

OCTOBER 1, 1959.

MY DEAR DR. SHANNON: We are in the process now of developing certain essential information for our January 1960 subcommittee report on the International Health Study.

In this connection, the helpful reactions and suggestions of Dr. James Hundley and Dr. Ronald Scantlebury have, as usual, proven invaluable.

I should like now to confirm certain points conveyed by our project director, Mr. Cahn, to them as regards our need for additional specific types of data within the next 6 weeks or so.

The enclosed memorandum contains a list of questions and needs which I know we can count on you and your associates to respond to in detail.

The format for your response, i.e., NIH's organization of the answers should be handled flexibly as you see fit, i.e., in whatever pattern you and your staff regard as convenient and appropriate for conveying the substantive information.

Finally, if the compiling of any of the material requested herein, e.g., the statistical data, represents an excessive burden and if estimates would prove more feasible under the circumstances, please don't hesitate to adapt the response as necessary. We have asked for a great deal of assistance over a period of many months and we do not wish to impose unduly.

Thanking you and with kindest wishes, I am,

Sincerely,

HUBERT H. HUMPHREY,
Subcommittee Chairman.

OCTOBER, 2, 1959.

Memorandum from: Senator HUBERT H. HUMPHREY.
To: Dr. James Shannon.
Re: Senate subcommittee questions regarding NIH international activity.

1. Procedure on oversea grants: What would be a step-by-step summary of the procedure by which a representative individual research grant to a foreign scientist by one of the categorical institutes takes place: from the time of the origination of the application abroad to the time the project is completed and "closed out"?

Wherein does this international procedure vary from the procedure as regards domestic grants?

In the institutes' judgment, i.e., from its view of the Federal interest, are present intra-U.S. Government arrangements for security clearance of prospective foreign applicants satisfactory?

(NOTE.—A similar question is being directed to the Department of State as regards clearances involving NIH and other agencies' oversea grants.)

Would the institutes estimate the average time lag between the original application and the final grant, i.e., assuming there is no security complication?

2. Proportion of international in relation to domestic applications for research grants: For the 1959 fiscal year, for NIH as a whole, as well as for the individual categorical institutes and DGMS, what were the—

(*a*) number of project applications received from domestic sources as against applications from foreign sources for research grants (please give absolute figures as well as the percentages);

(*b*) number of applications approved for domestic sources as against applications approved for foreign sources (please again give absolute figures, as well as the percentages);

(*c*) respective dollar totals in items (*a*) and (*b*) above, e.g., the dollar totals involved in applications received by the National Cancer Institute from both domestic and foreign sources, the respective percentages which each such figure represented in relation to the total of all NCI applications (in addition to the same information as regards applications approved)?

3. Administrative personnel on oversea phases: How are international activities presently organized at NIH, that is, what personnel (by name, title, and function) spend their principal time engaged in international phases as such?

What would be the dollar cost of the services of such personnel (salaries plus travel)?

What might be the ratio of expenses between—

(*a*) the cost of NIH administrative personnel fully or virtually fully engaged in international activities; and

(*b*) the total expenditures under NIH international activities?

4. On-site reviews: To what extent have formal or informal on-site reviews of projects taken place in the international sphere? How does this extent, or the nature of the reviews, or the matter of which type of personnel makes the reviews, compare with similar data for domestic project-site visits?

5. Interchange of personnel: What is the usual origin of applications for individual participation in the visiting scientist program, the guest-worker program, the research fellowship program and the post-doctoral research fellowships? How does the average application proceed toward completion, step by step? (This question is comparable to the Question 1 Summary.)

Would the institutes describe the total number, usual manner of formation, composition and functioning of the screening committees in the various countries which review fellowship applications, for example?

In which particular countries are such committees not functioning at the present time but which NIH regards as being significantly eligible for future fellowships?

In general, what are the types of problems which may have prevented some screening committees from being established and from getting underway?

How does NIH decide on how many fellowships to assign, per individual country?

Does NIH, as such, seek out promising personnel on its own initiative within any country?

Does NIH plan to relate future oversea fellowship grants to specific NIH research objectives?

6. Interagency liaison: Would the institutes kindly report as to any on-the-scene regular or irregular relationships in Western Europe between NIH officers and somewhat comparable officers of Army, Navy, and Air Force research and development?

Do the institutes feel a need for additional cooperation here and abroad between the oversea procurement and grant activities of NIH and those of, say, the armed services, and/or the Department of Agriculture and the National Science Foundation?

If so, would the institutes be in a position to make recommendations at the present time, e.g., as regards avoiding the possibility of unintentionally overlapping grants or unintentionally "overinquiring" of particular foreign laboratories or individuals?

7. Possible changes: Would the institutes indicate any new international program activities, or other changes which the institutes believe might be desirable for carrying out their present overall mission, as defined by existing statutes?

January 1960

National Institutes of Health Report on Support of Research and Research Training Activities Overseas

INTRODUCTION

The U.S. Department of Health, Education, and Welfare is responsible for about four-fifths of the Federal expenditure for medical research. About 85 percent of the department's appropriations for medical research are invested in Public Health Service programs conducted and administered by the National Institutes of Health.

A predominant part—currently about 80 percent—of the public funds appropriated for NIH is in turn awarded to non-Federal institutions such as medical schools and colleges, universities, hospitals and other scientific institutions for the support of research studies, research training, and related activities.

Although it is evident that research grant funds are intended primarily for the support of research by U.S. scientists and carried out within the United States, it is also clear that there are circumstances under which it is to the best interests of the American people as well as of science for these funds to be used in support of non-U.S. studies.

By statute, the fundamental scientific and program recommendations on which projects shall be supported rests with the advisory councils. These advisors, supported by the advice of study sections and working with Public Health Service staff, have evolved in practice a set of general criteria against which research grant applications submitted by foreign nations are measured.

Suitability of such a grant is inquired into in terms of special qualifications of the investigator, the characteristics of the research environment, the uniqueness of the research opportunity, the merit of the project application, and the total need for the data to which the project is directed.

Although the total amount of grants and awards to foreign nationals for the conduct of research and for support of research training is relatively small, this activity constitutes an important segment of the total program of the NIH. The following pages summarize the size and scope of the present participation by NIH in research and training abroad, the procedures for obtaining grants and awards, and some of the opportunities for further enhancing the effectiveness of the program in the future.

RESEARCH GRANTS

Procedure.—In many respects, the procedures for handling foreign grant applications are identical with domestic applications. The investigator develops an idea, decides to apply to NIH for support, prepares and forwards his application to the Division of Research Grants. There it is checked for completeness, accuracy, coded, catalogued, and assigned to one of the 33 study sections as well as one of the eight national advisory councils.

The executive secretary of the study section further checks the application to determine whether additional information is likely to be needed by the study section. He also determines whether the application is in accord with existing policy. The study section, which consists of "outside" experts in particular scientific disciplines, reviews the research plan and budget to determine scientific merit. The application may be rejected outright or it may be deferred for various reasons or it may be approved. If approved, the project is assigned a priority rating according to the judgment of the study section as to its relative scientific merit.

Projects approved by study sections are next reviewed by one of the councils. Although a council may occasionally for a number of valid reasons recommend approval of projects which are not among the highest according to study section ratings, the usual course of events is that the councils consider the funds available, the number of approved projects, and decide to recommend payment of projects beginning with those having the highest rating and proceeding to a specific cutoff point on the study section priority scale. Once the project is paid and activated, the investigator must forward brief research progress reports at yearly intervals. Each project also receives a financial audit at the end of each year. If the approved project carried a commitment for longer than 1 year, the investigator must apply for renewal each year. However, if the project is going well, such "continuation" grants have priority over new grants for available funds. At the end of the period of the commitment originally made or after 4 years of support, in any event further continuation must be in competition with all other applications, both new and continuation.

In practice, the procedures for foreign grants differ in some ways from those for domestic applications which were outlined above. Usually there has been some contact between the foreign investigator and NIH staff or study section or council members before the application is forwarded. This may arise through correspondence, by a visit of the investigator to NIH, or through contracts made by NIH staff while on business abroad. Typically, there must be considerably more correspondence with the foreign investigator to clarify aspects of his application and, at times, correspondence with various sources of information about the applicant and his work.

Foreign applications are reviewed by the same study sections and simultaneously with domestic applications so that all grants receive the same consideration as to scientific merit. Although study sections review the scientific merit of foreign grant applications without regard to program or policy considerations, they do give consideration to the following policy statement:

Grants may be made in support of research work conducted outside the territorial limits of the United States under the auspices of foreign organizations only when satisfactory evidence is provided that—

(1) the research is of such nature that for scientific reasons it can best be conducted outside the United States and is of general importance to medical sciences; and/or

(2) the applicant is so well qualified as to specialized training, experience, and talent that support of his work is indicated in anticipation of findings of general importance to medical research.

At the council level foreign applications receive special attention. In reaching final decisions on foreign grants to be recommended for payment each council applies two coequal criteria: (1) scientific merit as derived from study section priority ratings, and (2) relevancy and importance to the mission of the institute.

After the council has recommended a foreign application for approval, the application itself and all information as to study section and council actions are forwarded to the Department of State for clearances. As soon as notification of action by the Department of State is received—within a period presently averaging 6 weeks—the applicant is in turn advised.

In special cases, the Department of State has cooperated by expediting clearance on urgent applications in as little as 2 weeks. The total timelag between receipt of an application and final notice to the investigator is about 7 to 8 months. Usually no less than 6 months is required and in a few complicated cases, final resolution has required more than 1 year.

In one country, namely England, a special arrangement has been made to insure that grants made by NIH to scientists in the United Kingdom are consistent with research objectives and plans of the University Grants Committee and the Medical Research Council which are the principal bodies in the United Kingdom in the support of health and medical research. The agreement provides that the National Institutes of Health shall accept for review only those applications from any part of the university system which have been signed or countersigned by the university vice chancellor. The vice chancellor also indicates the maximum amount that would be acceptable to the university if the grant is awarded. With respect to the Medical Research Council, no application from an employee of this organization will be reviewed by the National Institutes of Health unless it has been signed by the secretary of that organization and unless it reflects a prior agreement of the Medical Research Council and the National Institutes of Health that a need exists for cooperative support. The agreement also provides for a means of coordination and exchange of pertinent information. Whether other countries will wish to establish similar arrangements is not yet known.

Proportion of international research grants.—Table 6 (Dr. Scantlebury's attachment) gives a breakdown of domestic and foreign grant applications for fiscal year 1959. The information is presented for NIH totally and by each institute. During fiscal 1959, a total of 11,098 research grant applications were reviewed. Of these, 10,855 were domestic and 243 foreign. For domestic grants, 9,000 or 82.9 percent were awarded. For foreign grants, 166 or 68.3 percent were approved. Of the total applications reviewed, 2.2 percent were foreign. Of those awarded, 1.8 percent were foreign.

TABLE 6.

NATIONAL INSTITUTES OF HEALTH—RESEARCH GRANTS SUPPORTED IN FOREIGN COUNTRIES BEGINNING OF PROGRAM TO 1959

	Total		1959		1958		1957		1956		1955		1954	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount
Totals by year	479	6,867,530	166	2,870,774	93	1,371,325	59	838,559	15	155,783	12	95,089	14	144,291
Argentina	25	216,180	7	103,950	4	30,030	2	14,700	1	10,000	3	15,000	2	12,500
Australia	2	15,723	1	7,040										
Belgium	9	149,956	4	83,438	1	15,000	1	19,000	1	2,000				
Bermuda	1	125												
Brazil	4	72,535	1	31,500	1	25,975	1	1,610						
Canada	81	1,085,456	30	451,824	19	245,341	10	129,843	2	22,608	2	21,447	2	18,000
Chile	8	38,744	5	31,094	3	7,650								
China	3	30,050	1	11,000										
Colombia	3	6,210	1	2,415	1	1,840	1	1,955						
Denmark	36	219,731	8	64,599	3	27,297	2	16,267	1	6,957	1	6,534	1	6,534
Eire	2	23,563	1	4,485	1	19,078								
Finland	9	92,530	3	28,750	4	45,180	1	15,000						
France	42	536,594	10	243,851	3	45,776	3	47,056	1	11,968	1	14,000	3	26,000
Germany	4	24,200	1	8,909	1	10,000								
Great Britain	35	866,702	14	389,082	6	232,035	4	154,335	1	1,750			2	35,000
Greece	1	15,000	1	15,000										
Guatemala	20	801,174	3	110,563	2	60,709	2	52,977	1	20,378				
India	7	65,245	2	23,905			1	8,137	1	8,030	1	8,208	1	7,965
Israel	39	480,473	18	254,996	8	96,698	8	79,287	2	14,692	1	4,800	1	15,000
Italy	11	101,211	4	53,682	2	20,350	4	26,179						
Jamaica	1	4,000	1	4,000										
Japan	16	141,991	7	51,391	6	61,700	2	19,200	1	9,700				
Korea	1	2,300	1	2,300										
Lebanon	14	94,190	4	41,618	4	37,273	3	5,579						
Liberia	2	47,916			1	23,958	1	23,958						
Mexico	8	65,594	3	33,260	3	24,650	1	6,654						
Netherlands	12	162,580	6	67,885	4	56,945	2	37,750						
New Zealand	2	8,400	1	4,200	1	4,200								
Norway	11	108,756	4	39,061	1	14,875								
Palestine	2	10,000												
Panama	5	172,925	2	71,340	2	76,385	1	25,200						
Peru	15	256,353	2	34,520	2	25,050	2	32,624	1	17,000	1	1,700	1	18,000
Philippines	9	98,368	2	19,250	1	18,100	1	18,000	1	18,000	1	20,600		
South Africa	12	146,909	5	65,458	3	52,371	1	17,388			1	2,800	1	5,292
Sweden	19	338,749	10	202,449	5	87,600	3	56,000	1	12,700				
Switzerland	8	347,097	3	310,938	1	5,259	2	29,860						

	1953		1952		1951		1950		1949		Beginning of program through 1948	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount
Totals by year	24	225,043	22	256,589	26	177,953	18	219,407	16	130,027	14	382,690
Argentina	2	12,500	2	12,500	1	2,500	1	2,500				
Australia											1	8,683
Belgium					1	518	1	30,000				
Bermuda									1	125		
Brazil											1	10,450
Canada	6	64,882	5	73,082			2	44,226	3	14,203		
Chile												
China	1	2,986	1	16,064								
Colombia												
Denmark	4	2,175	4	21,015	5	21,378	3	18,715	2	13,460	2	14,800
Eire												
Finland	1	3,600										
France	3	26,000	2	10,250	6	27,163	6	38,100	3	33,050	1	13,380
Germany			1	2,400	1	2,900						
Great Britain	1	10,000	1	10,000	3	4,500	1	10,000	1	10,000	1	10,000
Greece												
Guatemala	1	42,700	1	58,283	1	47,150	2	65,866	3	42,696	4	299,852
India			1	9,000								
Israel	1	15,000										
Italy							1	1,000				
Jamaica												
Japan												
Korea												
Lebanon	1	2,000	1	3,000	1	4,720						
Liberia												
Mexico									1	1,000		
Netherlands												
New Zealand												
Norway			1	540	2	15,480	1	9,000	1	15,000	1	14,800
Palestine											2	10,000
Panama												
Peru	2	39,600	2	40,455	2	47,404						
Philippines					1	3,200			1	493	1	725
South Africa	1	3,600										
Sweden												
Switzerland					2	1,040						

It should be noted that table 4 excludes all applications which were deferred, withdrawn, or are still subject to administrative determination. Further, it is especially important to note that this data includes both new applications and continuation renewals. As noted in an earlier action, the latter are fairly automatically approved. Of the 166 foreign grants made during fiscal 1959, 71 totaling $1,098,040 were continuations and 95 totaling $1,772,734 were new awards. The percentage approval rate considering new applications only is far lower than the overall rates shown in table 1. While we do not have complete data for new applications only some general statements can be made.

Study sections tend to disapprove completely somewhat more than one-half (52 percent) of the foreign applications they review. This is about the same for foreign and domestic applications (48 percent).

At the June and November 1959 Council meetings, 59 and 58 percent, respectively, of Study Section approved new foreign grant applications were recommended for payment.

Rates of approval for all grants, domestic and foreign, were about the same, namely, 58 and 57 percent.

Although foreign grants must receive State Department clearance following Council recommendation, experience over the past year indicates that of 91 actions, there was only one negative recommendation.

Taking the National Cancer Institute as an example, 1,912 applications were reviewed: 1,858 were domestic and 54 came from foreign investigators. Thus, 2.8 percent of total applications were from foreign sources. Of the domestic applications (new and continuation renewals), the approval rate was 86 percent. For foreign applications, the rate was 70.4 percent. With respect to dollar volume, as regards domestic applications, 84.3 percent of the amount requested was approved for payment whereas only 52.1 percent of the dollar volume requested was recommended for payment for foreign applications. Overall foreign research awards constituted 2.4 percent of the total awards and 2.1 percent of the total dollar volume.

Administrative personnel for oversea activities.—NIH has relatively few personnel who devote full or the principal portion of their time to international programs. The large majority of the work is done as a normal but minor portion of the duties of staff whose primary responsibilities are with domestic programs. Thus the same personnel in the Division of Research Grants and in the Division of Business Operations who handle domestic matters also handle foreign projects. This is true also for many of the intramural staff at NIH. For example, the International Research Fellowship Review Panel is composed of senior NIH staff who have this as an added responsibility.

Only two professionals and five administrative, secretarial, and clerical staff are assigned full time to international programs. These are centered in two locations. Dr. James M. Hundley, Special Assistant on International Affairs in the Office of the Director, NIH, has overall coordination and policy responsibility for all phases of the international programs. He is responsible directly to the Director, NIH. One secretary functions full time in his office.

The second group is the Office of Foreign Grants and Awards under the direction of Dr. Ronald E. Scantlebury. One administrative assistant, one secretary, and two clerk-typists comprise his staff. Organizationally, this office is a part of the Division of Research Grants, but operates under the general guidance of the Special Assistant on International Affairs. Dr. Scantlebury and his associates have complete responsibility for operating the foreign fellowship program, handling all processing and appointment phases of the visiting scientist program, including immigration, visa and tax problems, and maintaining current central records on all foreign grants and awards of all types. In addition, Dr. Scantlebury participates in the formulation of policy and procedures for all aspects of NIH's foreign activities.

The salaries of the groups listed above total $47,806 annually. Travel and other costs are estimated at $10,000. In addition, two consultants are employed intermittently: Dr. John R. Paul, professor of preventive medicine, Yale University, is consultant to the foreign fellowship program and chairman of the Foreign Fellowship Review Committee. Dr. Carl Schmidt, professor emeritus of pharmacology at the University of Pennsylvania, is also employed intermittently in connection with foreign fellowship and foreign research grant problems. During fiscal 1959, $2,200 was expended for consultant fees and $1,867 for travel and per diem. Thus the total cost for full time and consultant staff is $61,873 per annum. During fiscal 1959, NIH expended $5,347,144 on foreign grants, including grants to support international meetings, for the foreign fel-

lowship program, for U.S. fellows studying abroad, and for the visiting scientist program. Thus the ratio of administrative costs to total expenditures is approximately 1.1 percent. No realistic figure can be given for the cost of staff who spend a minor portion of their time in connection with international programs. Likewise, it should be pointed out that the financial figures and the staff listed above do not include the Russian translation program, foreign travel by NIH scientists, and NIH direct operations overseas, such as the Middle America research unit.

Onsite review.—Formal onsite review of prospective foreign projects is undertaken infrequently compared to experience with domestic projects. On the other hand, a surprisingly high percentage of foreign applicants are known to one or more of study section members and others who handle the review and approval of foreign projects. Such contact arises not only through the normal media of scientific communication but also during the course of foreign trips for attendance at international meetings and for other professional and business purposes. Our experience to date has been too limited to draw any sweeping conclusion as to the particular qualifications which staff or consultants must have to make foreign project site review as compared to domestic visits. Our experience so far suggests that essentially the same qualities are needed for either type of visit.

There is general agreement at NIH that more should be done with respect to onsite review of foreign projects, both prospective and those which have been in operation for some time. A systematic plan for this is being developed which should provide considerable guidance for future NIH international activities. A program of onsite review has already begun in connection with the foreign fellowship program, both for fellows now studying in the United States and those who have returned to their home countries.

INTERCHANGE OF PERSONNEL

Foreign fellowship program.—Awards in the foreign fellowship program are made upon recommendation of a board of National Institutes of Health scientists chaired by a consultant from a major university. Applicants first apply to a committee composed of local scientists in each participating country. This committee nominates up to a designated number of scientists for the fellowships.

Nominating committees have been established in 33 countries. For the most part, these countries were visited by a National Institutes of Health staff member and/or a consultant from one of the major universities. The prospective chairman of the nominating committee is selected after a careful onsite review of the structure of health and medical research in the country, and of the outstanding scientists in each country.

The Director of the National Institutes of Health appoints the chairman, usually a medical research scientist of national and international reputation. Usually he is a member of a national research council or comparable organization. The chairman independently selects committee members who are representative of the whole country in broad areas of health research.

Local committees make nominations once each year. Formal recommendations of nominees are due in the Foreign Grants and Awards Office, Division of Research Grants, by January 15 of each year.

Young medical research scientists from foreign countries desiring to come to the United States for a year of postdoctoral training may receive information regarding the availability of fellowships in their country from either of two sources—the local chairman of the National Institutes of Health Research Fellowship Nominating Committee (if the country of their citizenship or residence has such a committee [3]) or from the Foreign Grants and Awards Office, Division of Research Grants, National Institutes of Health, Bethesda 14, Maryland.

Availability of the fellowships is made known in each country by the local committee in such a manner as they determine will give the widest distribution of information. Some of the methods which are known to have been used are an announcement at a national scientific meeting, duplicated or printed bulletin board notices, sending out information statements provided by the National Institutes of Health, notices in journals, and, in at least one country, a sizeable advertisement in a daily newspaper.

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[3] Current participating countries are: Argentina, Australia, Austria, Belgium, Bolivia, Brazil, Ceylon, Chile, Colombia, Denmark, El Salvador, England, Finland, France, Germany, Holland, India, Iran, Israel, Italy, Japan, Mexico, New Zealand, Norway, Pakistan, Peru, Philippine Islands, South Africa, Spain, Sweden, Switzerland, Thailand, and Uruguay.

Applicants receive three rigorous screenings:

1. The applicant must find his own sponsor in the United States. Initial contact is usually made for the fellow through a senior scientist in the foreign country and the proposed U.S. sponsor. This procedure acts as an important primary screening of applicants and establishes a scientist-to-scientist relationship which would not be possible were the National Institutes of Health to seek out training centers and arrange to assign fellows to them. The adequacy of the laboratory to provide the training sought is considered by committees reviewing applications.

2. Applications are submitted to the research fellowship nominating committee in the applicant's home country. This committee screens applications on the basis of scientific competence, likelihood that the applicant will remain active in medical research, and the needs for developing personnel to carry on research in new fields. The committee is permitted to nominate a stated number of candidates, usually up to four. Applications for nominees are forwarded to the Foreign Grants and Awards Office, Division of Research Grants, National Institutes of Health, together with academic records, letters of recommendation, and a covering letter from the local committee indicating the reasons for the particular choices.

3. Final review is by the Foreign Fellowship Review Panel at the National Institutes of Health.

The Panel considers, among others, the following factors in rating applications: scientific merit, the adequacy of sponsor and laboratory to give the training sought, the need to develop new research personnel within the applicant's country, and recommendations of the nominating committee. Inasmuch as funds are not available to pay all approved nominees, the National Institutes of Health Panel, as individuals, assigns a priority number to each application with the number 1 representing the most desirable and number 5 the least desirable. Applications may also be disapproved. The priorities of the individual panel members are recorded for each nominee and averaged to two decimal places. The decimal is omitted, giving a priority range from 100 (highest) to 500 (lowest). The priority list is examined to determine whether each of the countries will receive at least one award in the group which can be paid with funds available. To date each country has received one or more awards. If the situation arises in which one or more participating countries would have no nominees receiving awards, it is the expressed intention of the committee to evaluate the candidates highest on the list from these countries to see if some adjustment can be made. However, in the opinion of the committee, disapproved applicants will not be reevaluated.

The Foreign Grants and Awards Office, Division of Research Grants, services the nominating committees in foreign countries as well as the National Institutes of Health Panel which finally reviews and recommends nominees for awards. In order to explore means of evaluating the effectiveness of these awards, the Chief of that Office has visited most of the participating countries. Continuous liaison is maintained by correspondence between the Chief of the Foreign Grants and Awards Office, Division of Research Grants, and the chairmen or secretaries of the nominating committees. Several chairmen and secretaries of the nominating committees have also visited the central office at the National Institutes of Health, where operational problems were discussed.

Recommendations for awards are made to the Surgeon General of the Public Health Service with a few names being held as alternates in case some nominees are unable to accept their awards.

Fellowship grants are made to institutions providing the training, except for a few cases where fellows train in Government laboratories. The latter are paid directly from the National Institutes of Health. Fellowship grants consist of amounts for stipend, dependency allowances, travel, supply grant ($500), and indirect costs (currently 8 percent).

When the fellow enters on duty every effort is made to assist him to adjust quickly to his new environment so that he can get the most of the relatively short time (usually 1 year) he will be in training. A staff member or a consultant visits fellows from time to time during the year to assist them with any problems and get some idea from him and his sponsor as to the effectiveness of the program in general.

The Foreign Grants and Awards Office is responsible for checking all details of award and relationship of the grant to the institution and fellow. The form DSP–66 required for the fellow to enter the country as an exchange visitor is issued. An insurance program has been established to cover fellows and, on a

voluntary basis, their families. Entrance on duty and termination dates are established.

Exploratory studies were made in six European countries during the period August 22 to September 16, 1959, at which time information was gathered to assist in formulating plans to follow up fellows upon their return home. One important problem seems to be the availability in his foreign laboratory of equipment the fellow had learned to use during the time he spent in the United States. Arrangements are being made for the returning fellow to make application for a small grant if he has permanent institutional connections to which to return.

More important is the desire to maintain an active interest in the fellow and assist him in keeping up an active relationship with U.S. scientists and those of other countries with whom he may have worked side by side during his training period.

Thus far all available evidence indicates that this program is functioning very well both with respect to the people being trained, the training institution in the United States, and the fellow's home country institution. Naturally a few problems have been encountered. The political systems in certain foreign countries make it difficult to appoint the most suitable chairman of the local committee. Some countries have been unable to find suitable candidates. Some confusion has arisen in the interpretation that candidates must have a doctorate degree. The equivalency of various degrees in various countries has had to be worked out. Some countries have presented candidates over the prescribed age limit. These, however, have been minor difficulties which are mostly resolved.

In fiscal year 1959, 30 countries were eligible to participate. Eighty candidates were actually received from 26 countries. Iran, Pakistan, and Ceylon could not find suitable candidates. India was delayed in the formation of its committee. From the 80 candidates, 49 awards were made. Fortunately at least one award could be given to each country having candidates, based strictly on the merit of the candidate.

This program is being extended slowly. In fiscal year 1960 new committees are being formed in Bolivia, South Africa, and Israel. Negotiations are underway with Taiwan, Venezuela, Yugoslavia, and Lebanon. Eire, Indonesia, and Poland are considered eligible but negotiations have not yet been instituted. Exchange of research scientists with Russia will be pursued as a separate program under the recently concluded intergovernmental agreement. The situation in Greece, Turkey, Portugal, Egypt, and Korea is being studied.

NIH does not in this program seek out promising personnel within any country. The original screening and selection is entirely in the hands of the "local" committees.

U.S. fellows studying in foreign laboratories.—Administrative and review procedures are the same for applicants proposing to study abroad as for those training in domestic institutions. Additional information, however, is required of applicants desiring to train in foreign laboratories. Such additional factors as the qualifications of the fellow to profit by study in a foreign country, and the special techniques he would learn that could not be readily learned in a laboratory in the United States, are important considerations in the final recommendation of the review panel.

Following are the procedures for review of research fellowships:

1. The application submitted by a prospective fellow is received by the Research Fellowships Review Branch, Division of Research Grants. A complete application includes the data indicated below:

Application form PHS–416 properly filled out and signed by the applicant.

"Qualifications inquiries" containing both objective and subjective information submitted directly to the Research Fellowships Review Branch by four evaluators selected by the applicant.

A "facilities and commitment statement" completed and signed by the person selected by the applicant to supervise and sponsor his research training. This document assures the reviewing board that space and necessary equipment are available and that the sponsor will assume responsibilities for training commensurate with the level of the fellowship sought. Narrative comments are sought from the sponsor to indicate why he chose this particular fellow.

Transcripts of academic record including grades received within the previous 10 years in undergraduate, graduate, and professional courses.

2. Upon receipt, applications are assigned to one of nine discipline panels for preliminary review and to an appropriate categorical Institute for second review and possible payment. These discipline panels are composed of NIH staff with the necessary qualifications.

3. Executive secretary of appropriate discipline review panel screens application and supporting documents for items requiring clarification or additional information. (Those seeking advanced training abroad must show better training centers are not available in the States. Predoctoral applicants must show that training they seek can only be obtained abroad.)

4. When all supporting data have been received, the complete application is assembled and duplicated.

5. Applications are reviewed monthly by appropriate discipline panel. If approved they are given a numerical priority of 1 to 5 (1 being highest rating). Reasons for priority or disapproval are summarized and become part of permanent record of individual.

6. In the case of postdoctoral and special research fellowship applications, a summary of panel opinions and recommendations and the official file are forwarded to the Grants Branch Office of the assigned Institute.

Predoctoral research fellowship applicants are listed in descending order of priority and sent to Chief of Fellowship Branch, who determines how far on priority lists to go in making awards.

7. Assigned Institute's Specialty Fellowship Board reviews monthly those postdoctoral and special research fellowship applications forwarded to them for final action. Since evaluation of the scientific and personal aspects has already been made by discipline review panel, Specialty Fellowship Board is primarily concerned with proposed training of applicant as it relates to program interests of Institute. It also determines stipend for approval applicants at the special level.

Second screening does not occur for predoctoral research fellowship applications.

8. Assigned Institute prepares official documents notifying applicants for postdoctoral and special fellowship support of final outcome of their request.

Research Fellowships Review Board officially notifies applicants for predoctoral research fellowship support of final decision on their requests.

9. Awardee has 10 months in which to accept fellowship if awarded.

During fiscal 1959 NIH made 95 awards totaling $581,326 in this program.

Postsophomore research fellows—Funds were set aside in fiscal year 1957 to support medical, dental, and public health students who wish to take 1 year from their professional studies for intensive research training. These fellows are usually appointed after having finished 2 years of professional training as this is the natural breaking point between the preclinical and clinical years of training.

Grants are made to schools for support of a limited number of these fellows. Committees are established at the school to select fellows. Awards may carry stipends not in excess of $3,200 per year and a limited sum for research expense is provided. It is permissible for these fellows to be assigned to foreign institutions for their training. In fiscal year 1959 nine students from three institutions received their research training in laboratories abroad. Four were sent to England, two to France, and one each to Argentina, Denmark, and Sweden. The total expenditure from National Institutes of Health funds was $34,398.

Senior research fellows.—Senior research fellowships are awarded to basic science departments of medical, dental, and public health schools. Their purpose is to foster additional research in the preclinical department of their schools and to develop young investigators by providing support for them between their postdoctoral training and their eligibility for permanent higher academic appointments. Each candidate must be endorsed by a school of medicine, dentistry, or public health, and an application presented to the National Institutes of Health in his behalf by the school with which he will be affiliated. Each school may present not more than three such candidates semiannually. Candidates must be U.S. citizens or have declared their intention to become a citizen. Budgets may include salary and fringe benefits as well as up to $2,000 in research funds. Awards are made for 1 year with assurance of support for 4 additional years if funds are appropriated for this purpose.

Applications of the candidates are reviewed by a committee of non-Government academicians from the preclinical areas and awards are made by the

Surgeon General through the Division of General Medical Sciences, National Institutes of Health.

During the course of the fellowship, the institution may decide that a period of training in a foreign laboratory will be helpful in the well-rounded training of the fellow. Fellows return to their parent institution in the United States following training periods which have ranged from a few months to a year or more. Nine fellows were so trained in 1959 at a total cost of $91,408. However, total costs were derived from the original grant and no additional funds were required because of foreign study.

Visiting scientist program.—Visiting scientist appointments are made to two groups of foreign visitors who come to the National Institutes of Health for varying periods of time. These individuals are appointed under section 207 (f) and (g) of the Public Health Service Act and part 61 of the regulations issued by the Surgeon General. All are employed at the National Institutes of Health except in a few instances where the mechanism has been used for appointments at the Rocky Mountain Laboratory at Hamilton, Mont., and the Communicable Disease Center at Atlanta, Ga.

The two groups are (1) research scientists of world renown who are brought to the National Institutes of Health to carry on independent research projects or to associate in projects with scientists in the various laboratories at the National Institutes of Health; (2) research associates who are employed to pass on to the staff members of the National Institutes of Health specialized techniques they have learned in the laboratories abroad or, in a few instances, because personnel cannot be found in the United States to perform a particular task.

Appointments are by invitation from the Director of the National Institutes of Health. Applications for approval originate with chiefs of the various laboratories who make preliminary arrangements with available scientists in the above categories. A memorandum is written, giving full details regarding the person for whom appointment is sought, as well as strong justification for appointing a noncitizen, the special need to be filled, peculiar qualifications this person has to meet these needs, and the anticipated value of the appointment to the National Institutes of Health. The memorandum is then reviewed by the scientific director of the institute or division concerned, the director of that institute, and the Associate Director of the National Institutes of Health for Intramural Research, who in most instances acts for the Director, National Institutes of Health, in giving final approval.

When an application is approved by all of the above individuals, it is sent to the Foreign Grants and Awards Office, Division of Research Grants, for the necessary processing. This consists of writing a letter of invitation, determining the papers necessary for issuance of a proper visa, and obtaining a form 57 (application for Federal employment) from the individual to be appointed.

When the scientist arrives, papers necessary to make the appointment are completed in the Foreign Grants and Awards Office, Division of Research Grants; form 85 (security investigation data) is filled in for the visiting scientist's signature and sent to the Personnel Office of NIH for processing; the loyalty oath is administered; tax deduction category is determined on the basis of the visa held; and notice of entrance on duty prepared and sent to the Payroll Section, National Institutes of Health.

When the visiting scientist leaves the Institutes, the Foreign Grants and Awards Office, Division of Research Grants, assists with tax matters, exit permits, and prepares notices of termination of the award which are forwarded to the Payroll Section, National Institutes of Health.

Visiting scientists are selected by virtually the same mechanisms as regular staff. The initial contact may arise from an NIH staff member searching for a particular talent needed in his research program. On the other hand, the initial contact may be by the foreign scientist who desires to work for a period at NIH and locates a program where his skills and training are needed and desired. Approval for appointment, once the initial plan is made, follows practically the same mechanisms as would be used for the selection of permanent staff.

Quite recently the visiting scientist program has been modified to establish a category of appointments to provide for the employment of foreign scientists who will work at NIH as research fellows. In other words, the scientist will be at NIH not to participate in or contribute to a particular research program but to receive training.

Salaries of visiting scientists vary greatly. The amount of the award, except in unusual circumstances, does not exceed the amount which the scientist would receive if he were appointed under Civil Service.

One hundred thirty-three visiting scientists were appointed during the past year. The total cost of the program for the year was $1,034,401.

Guest workers.—The National Institutes of Health, in accordance with section 301(b) of the Public Health Service Act, authorizing the Surgeon General to "make available research facilities of the Service to appropriate public authorities and to health officials and scientists engaged in specific study," gives consideration to requests from qualified organizations and individuals desiring to participate in NIH investigations, or to carry on their own, through use of NIH facilities. Use of these facilities may be still further encouraged so that scientists in the fields of NIH interest may benefit by scientific resources and identify the Institutes as an important national resource, contributing significantly to the advancement of their discipline and achievements as well as the total research field.

In order to differentiate between a visitor, visiting scientist, and a special fellow, a guest worker is defined as any person who has requested and has been granted permission to carry on a special research project of his own at the Institutes, or to participate in a program already underway, but performs no specific or required services for the National Institutes of Health. A guest worker is one who receives no pay or other moneys from appropriated Federal funds, but may be receiving some form of remuneration from universities, commercial firms, non-Federal grants, foreign institutions, or foreign governments. A research scientist visiting or working at the National Institutes of Health for less than a week will be considered a visitor and not a guest worker.

INTERAGENCY LIAISON

There are no regular on-the-scene releationships in Western Europe between NIH officers and comparable officers of Army, Navy, and Air Force research and development. There are, from time to time, irregular contacts between NIH staff and such officers. Usually these arise during a course of foreign travel on other business. NIH has no officers stationed abroad other than those sent for training in particular institutions or those engaged in research work such as the Middle America Research Unit. One NIH staff person is currently working in the Office of Naval Research in London. This is being done, however, under a leave of absence arrangement rather than for purposes of liaison.

On the other hand, representatives of the Department of Defense regularly sit with NIH study sections and councils. Some parts of the military regularly report to us on their international projects. In addition, there is a good deal of informal contact between NIH staff and their counterparts in the military, as well as the Department of Agriculture and the National Science Foundation, and the Office of the Science Adviser to the Secretary of State in Washington.

None of these arrangements are adequate to ensure coordination and mechanisms to prevent overlapping that seem to be clearly necessary. In part, some of the existing inadequacies might be overcome if the Armed Forces could report more completely to the Biosciences Information Exchange. In part, possible overlap and conflict may be prevented through the activities of the science attachés of the Department of State who are increasingly covering geographic areas of major interest, particularly in Europe. In addition, some coordination mechanism with respect both to training and program implementation seems needed in Washington. This may come about through the present plan to establish an Interdepartmental International Committee to be concerned with U.S. international activities in science and technology. This is being organized under the Federal Council for Science and Technology. Whether this will in fact provide an adequate mechanism for coordination can only be determined when these plans are more developed. The need for interdepartmental coordination of this type will become especially acute if a number of Federal agencies receive Public Law 480 authorizations during the coming Congress.

In addition, the office of the Science Adviser in the Department of State is assuming an increasingly active role in ensuring coordination and joint planning among a number of Federal agencies engaged in programs overseas. It is now too early to assess the effectiveness of these efforts.

FUTURE POTENTIAL

There are many opportunities for developing and improving the mechanisms for more fruitful collaboration with foreign scientists and scientific institutions. The National Institution of Health is working under a handicap of nonspecific and ambiguous legislative authorities with respect to its activities overseas. Some clear expression from Congress as to the type and scope of the activities which NIH should undertake internationally would greatly aid in resolving this difficulty.

Another opportunity for improvement t in the present international activities of the National Institutes of Health is in planning on a long-range basis. Present activities have arisen largely on the basis of opportunism when a need or an opportunity happened to become known. This is in contrast to a carefully planned and systematically organized international program. In part, this is due to the difficulties mentioned in the paragraph above, in part due to the fact that NIH international activities underwent a considerable setback in the period around 1955, and in part due to the fact that only recently has the full potential of international cooperation been recognized as a means of carrying out the overall mission of NIH. Each Institute is currently assessing its international activities and formulating a definite plan with respect to these activities in the future. As indicated in an earlier section of this report, NIH also is making plans for a systematic on-the-spot evaluation of existing activities as a means of providing guidance for the future.

B. Department of Defense Activities in Life Sciences Research

Senator Humphrey. This section deals with the activities of the Department of Defense in reference to research in the life sciences. It is presented in some detail because I believe there may not be sufficient recognition of the fact that, in both wartime and peacetime, the Armed Forces of the United States are to be credited with sponsoring a great amount of outstanding biomedical research. This research has not only reduced illness and death among our servicemen but also has been of tremendous usefulness to the health and welfare of mankind in general.

One of the very first series of offices in Europe which our project director visited in October 1958 was the European research and development headquarters of the respective services—Air Force Research and Development in Brussels, Army Research and Development in Frankfurt, and the Office of Naval Research in London.

The information which follows was compiled at that time and subsequently, based on conferences in Washington. This information is organized under four headings, as follows:

First, as general background, a brief simplified outline is presented on the broad scope of Defense Department research in the life sciences, whether at home or abroad.

Second, initial reports on oversea research are reprinted, as respectively submitted at the end of 1958 and in early 1959 by the Department of the Air Force, the Department of the Army, and the Department of the Navy.

Third, a supplementary and more recent summary on oversea research in the life sciences by the respective services is printed.

Fourth, a brief letter describes two interdepartmental committees.

1. GENERAL CATEGORIES OF RESEARCH IN THE LIFE SCIENCES

If one were to try to categorize in simplified form some of the major fields of research interest to the Department, a few principal

classifications of its work might be set forth as follows, according to disease entity:

Cancer.—The Armed Forces Institute of Pathology has the leading role in cancer research and registry within the departments; however, minor clinical research projects are being conducted in military medical facilities.

Cardiovascular.—The Air Force School of Aviation Medicine has been engaged in an extended study of cardiac physiology and the effects of flying stress on cardiovascular aging.

Allergy and infectious diseases; parasitic and tropical diseases.—Under this combined heading the Armed Forces Epidemiological Board, which acts as consultant and adviser to the Surgeons General in the administration of extramural research grants and contracts, has within its organization a number of commissions in the field of infectious diseases. For the purposes of the Armed Forces Epidemiological Board, the Commissions are:

(*a*) Commission on Acute Respiratory Diseases.
(*b*) Commission on Enteric Infections.
(*c*) Commission on Immunization.
(*d*) Commission on Influenza.
(*e*) Commission on Parasitic Diseases.
(*f*) Commission on Rickettsial Diseases.
(*g*) Commission on Streptococcal Diseases.
(*h*) Commission on Viral Infections.

In addition to the extramural programs under cognizance of these Commissions, there are intramural programs conducted and supervised by the (Army) Walter Reed Institute of Research, in several naval medical activities, and by the naval medical research units, one of which is located in Cairo, Egypt, and one in Taipei, Formosa.

Limited programs are conducted by the U.S. Air Force School of Aviation Medicine.

Accidents.—Included in the Commissions of the Armed Forces Epidemiological Board is one on accidental trauma which has supported extensive research in this field. The U.S. Air Force Flight Safety Division of the Inspector General is conducting research in aviation accidents. A similar program is conducted by the U.S. Navy School of Aviation Medicine.

Sanitary engineering.—Under the Armed Forces Epidemiological Board is the Commission on Environmental Hygiene which supports research in sanitary engineering. Also, under the auspices of the Department of Defense is the Armed Forces Pest Control Board which conducts studies and research on the control and elimination of insect and animal pests, and development of insecticides and rodenticides.

Nutrition.—The Department of Defense is a participant and furnishes the Chairman to the Interdepartmental Committee on Nutrition for National Defense, which conducts surveys of nutrition in underdeveloped countries and advises on the development of nutritional resources of the countries concerned.

Within the military departments, active research in nutrition is conducted by the Army Surgeon General Food and Nutrition Laboratory, located in Denver, Colo., and the Army Quartermaster General Food and Container Institute.

Radiation.—Research in radiation, which is associated intimately in weapons development, weapons effects, and power development, is centralized in the Office of the Director of Defense Research and Engineering and allocated to the military departments in several intramural and extramural programs.

The U.S. Navy operates the naval radiological laboratories which monitor most of the programs in the Navy. The Air Force Research and Development Command generally has supervisory control in the Air Force. Programs in the Army are divided between the Army Surgeon General and the Army Chief of Ordnance

Rehabilitation.—Research in the development of prosthetic appliances has been in active programs of the medical departments of all military services but especially at the Walter Reed Army Hosiptal and the Naval Hospital at Bethesda.

Miscellaneous.—Extensive research in medically oriented subjects is under the support of the Army Chemical Corps.

Air Force Research and Development, Office of Naval Research, and Army Research and Development have extensive research programs in human engineering, personal equipment, and psychological studies of selection and training. Toxicological studies of missile fuels are being conducted by both Army and

Air Force. Problems of closed ecological systems are being studied by Navy and Air Force.

The above résumé is not intended to be a complete survey of all medical research being accomplished within the Department of Defense but is illustrative of the major areas of interest. Some individuals and selected medical facilities combine therapeutic efforts with certain research activities such as at Oak Knoll, Calif., where the Navy has a rehabilitation center, and at Pensacola, Fla., where some cardiovascular research is accomplished. The Joint Committee on Aviation Pathology, established by agreement among the United States, Great Britain, and Canada, in investigating causative factors of aircraft accidents might be considered as accomplishing some research in accident prevention, though its primary mission is to screen pathological material and findings resulting from aircraft accidents for their respective countries.

We may note at this point that the total biomedical research program for the Department of Defense for the 1960 fiscal year aggregated $48.6 million. Of this sum $27.1 million were for intramural programs and $21.5 million for extramural programs.

As regards oversea programs, the Department supported 226 projects, aggregating $2.3 million in the life sciences during the 1960 fiscal year. Thus, we note that the research effort is preponderantly within the United States.

2. INITIAL REPORTS ON OVERSEAS LIFE SCIENCES RESEARCH

Senator HUMPHREY. In September 1958 the subcommittee addressed its initial inquiries to the Department of Defense. This section comprises the responses to these initial inquiries which were of great value and importance to the subcommittee in getting our study under way.

Thereafter, as our familiarity with this field developed, we were able to focus on more detailed phases and to request more specialized information from the armed services. The initial materials received by the subcommittee follow.

A. Department of the Air Force

The following is the text of a report dated December 2, 1958, as received from Dr. Frank B. Berry, Assistant Secretary of Defense (Health and Medical), from the Department of the Air Force.

SUMMARY OF THE U.S. AIR FORCE MEDICAL ACTIVITIES IN THE FIELD OF INTERNATIONAL HEALTH AND MEDICAL RESEARCH [1]

In compliance with the request from the Subcommittee on Reorganization and International Organizations of the Committee on Government Operations, U.S. Senate, a study of the medical research activities of the U.S. Air Force reveals the following projects presently monitored by the Human Factors Division of the Office of the Director of Research and Development.

The research and development program may be divided into several categories, either by special area of interest of geographic location, for ease of understanding. The total worldwide program, as revealed by this study, indicates that the Air Force is spending or has budgeted $2,331,000 for fiscal year 1959, and proposes to spend $2,786,000 for fiscal year 1960. These funds provide the financial support for about 120 contracts to a large number of colleges, universities, other institutions of higher learning, private industrial contractors, and governmental agencies, in almost every interest in the medical field, especially as it pertains to the present and future mission of the Air Force.

[1] Prepared in 1958.

Fields of international medical research.—Taking a closer look at these divisions or categories of special interest, let us consider the field of *preventive medicine research.* Preventive medicine research contracts for fiscal year 1959 indicate an expenditure of $304,000, and for fiscal year 1960, $304,000. Summary of activities under study include problems in the preventive medicine aspects of dental health, microbiology, accident prevention, sanitary and industrial hygiene, radiobiology, and epidemiology. There are 12 contractors covering these projects, and they include State universities, independent industrial establishments, and State health departments.

In the field of *medical standards in aviation,* there are 15 contracts with military medical research groups at the School of Aviation Medicine and State universities involving $627,300 for fiscal year 1959, and $757,500 for fiscal year 1960. Projects cover the clinical medicine aspects of ophthalmology; dentistry; internal medicine; pharmacology and biochemistry; microbiology; ear, nose, and throat conditions; and veterinary medicine.

The Arctic Aero Medical Laboratory of the Alaskan Air Command proposes to spend $370,000 for fiscal year 1959, and $480,000 for fiscal year 1960. *Studies under consideration in the Arctic Aero Medical Laboratory* include investigations of the psychophysiological factors underlying cold injury, including general hypothermia and frostbite; pharmacological treatment methods and agents; studies in cardiovascular reaction to low temperature and allied stresses; special effects of diet; investigation of polar winter aspects of preventive medicine; environmental sanitation; diseases of animals transmissible to man; and parasitology.

Research in the biomedical field conducted from the European Office of Air Research and Development, located in Brussels, Belgium, monitors 52 contracts at a cost of $724,000 for fiscal year 1959 and an equal amount for fiscal year 1960. These contracts are held by 33 contractors located in Germany, Italy, Sweden, England, France, Norway, Belgium, Denmark, and Switzerland. The contracts cover the subjects of neurology, neuroanatomy, pharmacology, physiology, psychology, ophthalmology, cardiology, and biochemistry.

In fulfilling the obligations of these contracts, some of which run for several years, *interim reports are required and are published* in order to denote the progress or difficulties encountered as well as the disclosure of vital information which may be of value to parallel studies in the same or related fields of investigation. These investigators represent a fruitful source of technical literature which is disseminated either as published articles in technical journals or presented at national and international scientific meetings and symposia. They are, therefore, available for use in worldwide health and medical activities.

International medical service and assistance program.—The participation of the Air Force Medical Service in an international medical service and assistance program is *less well-defined than that just described* in the case of international medical research. In the first place, the Air Force does not carry international medical service and assistance items as such in their operational budgets. All activities of this nature are carried as "an activity in addition to" the prescribed Air Force mission in a particular area. Where international programs have been developed, they were entered into as an activity which benefits the Air Force secondarily by mutual cooperation, service, or assistance, and are financed as a local Air Force operation. Examples of such mutual service and assistance, as carried on during fiscal year 1959 or as will be carried on in fiscal year 1960, would be somewhat as follows:

The Directorate of Plans and Hospitalization, Office of the Surgeon General, reports the Air Force Medical Service has provided materiel and equipment, including pharmaceuticals, medical and dental supplies and instruments, to friendly foreign governments under the mutual assistance program in the following amounts:

Fiscal year 1957	$586,000
Fiscal year 1958	318,600
Fiscal year 1959	[1] 446,900

[1] Projected.

USAF activities directly affecting foreign populations.—Air Force health activities which directly affect foreign populations are:

(1) Medical training provided professional and nonprofessional indigenous personnel employed in oversea installations. Chest X-ray service provided these same personnel.

(2) Medical assistance provided foreign populations during local disasters such as floods and train wrecks.

(3) Improved health standards as result of veterinary programs resulting from local purchase of meat and dairy products.

(4) Disposal of surplus medical stocks. Section 7, paragraph 18b, section 13, volume 13, Air Force Manual 67–1, provides that the Air Force may dispose of excess stocks at a reasonable price or they may be donated to charitable organizations of friendly governments.

(5) Benefits of preventive medical measures such as insect and rodent control and chlorination of water supplies.

(6) Medical facilities which may be transferred to foreign governments. These facilities are built overseas on the premise that such facilities will be turned over to the foreign government concerned when they are no longer required by the U.S. Government.

USAF health program in Europe.—The international health program, as carried on by the U.S. Air Force in Europe, includes the following:

(1) *Industrial health programs:* USAFE contributes to labor medicine in various countries through our industrial health programs for foreign nationals employed by us in these countries. In general, this program emphasizes training of workers in health and personal hygiene, safeguarding the workers' environment, and preemployment and periodic physical examinations of employees. This program has reached its highest development in France. Under the NATO Status of Forces Agreement, the U.S. forces in France are required to comply with French law to implement and financially support medical services for their French employees. Annual cost of this program in France is $50,000.

(2) In north Africa, the 17th Air Force cooperates with the International Cooperation Administration (ICA) program of *malaria control.* This is done by furnishing insecticides for use in areas adjoining Air Force bases, thus benefiting both the native population and the bases concerned.

(3) USAFE bases have a continuing program of *health education* for native food handlers in the fundamentals of food sanitation and personal hygiene.

(4) Probably the most important activity concerned with international health is the *fourth epidemiological flight* at Izmir, Turkey. Complete activity and progress reports are on file at Headquarters U.S. Air Force. In fiscal year 1958, the budget for the fourth epidemiological flight is $24,144, which includes travel, rental of building, and supplies, but does not include military pay costs. For fiscal year 1959, the proposed budget is $34,712, which does not include military pay. Specific references are made to the following:

(*a*) *Throat cultures* were obtained from all patients admitted to the Izmir Turkish Children's Hospital. These are being stocked for eventual strain identification.

(*b*) Housefly and mosquito larva *insecticide resistance studies.*

(*c*) *Leptospirosis surveys.*

(*d*) *Environmental sanitation surveys* of Turkish communities.

(*e*) *Sanitary studies* of Turkish water supply systems.

(*f*) Cooperation with the Turkish national *malaria eradication program.*

In addition to the above, professional personnel of the USAFE are encouraged to *attend meetings of professional groups* in the various countries and to *participate in local medical society activities.* Further participation in international health programs is not feasible due to limitations in both personnel and dollars.

USAF in the Far East and Pacific areas.—The USAF units in the Far East and Pacific areas are taking an active part in the *medical service and assistance program* with our allies in this area, especially as it pertains to the training of medical personnel in the practice of aviation and clinical medicine. In a study made of the semiannual historical reports of the Pacific Air Forces, the 5th and 13th Air Forces, the following information relative to international health medical programs was obtained:

In addition to rendering special services and medical care to the armed services personnel and their dependents in the Far East, several extremely important programs have continued. One program concerns itself with the *training of interns in USAF hospitals.* In Japan, with the approval of the Ministry of Health and Welfare, approximately 20 Japanese national physicians are currently in internship training at our hospitals. They are selected from several hundred candidates on the basis of general education, professional ability, and other similar qualifications. At the end of 1 year's internship, all Japanese physicians take their national board examinations. Approximately 95 percent of the Japanese physicians who have been trained in USAF hospitals in the past have continued with further postgraduate work in the United States under

various auspices. It is believed that the internship program is extremely important from many aspects, primarily the support given to the improvement of the status of the Japanese physician within his own country, but it is even more important in the continuation of world peace through mutual understanding and respect of persons within the medical profession.

There is an *intern and residency training program at the USAF Hospital Clark, Clark Air Force Base*, where 16 Filipino physicians are presently in a rotating internship. Eight residents are in training in medicine and surgery. This program has the approval of the Filipino Medical Association.

In addition to the internship and residency training program, some 30 additional physicians from countries participating in the mutual assistance program take *courses of 4 to 6 months' duration* in the various specialties available at USAF Hospital Clark, Clark Air Force Base. Laboratory technicians, hospital registrars, medical administrators, and hospital librarians from the same area also receive training at this installation. The intern-residency program is unique in that the cost is negligible to the United States and the Republic of the Philippines, but at the same time greatly benefits these two countries as well as all individuals of both nations who participate in the program.

During the past 2 years *four large PACAF command surgeon's conferences* were held within the Pacific Air Forces. In attendance at each conference were approximately 100 guests from southeast Asian countries, including Japan, Korea, Taiwan, Philippine Islands, Vietnam, Thailand, Cambodia, India, and Burma, as well as Australia and the United Kingdom, in addition to approximately 300 military of the U.S. Armed Forces. The primary objective of these professional meetings is to share with others medical knowledge to improve the health of peoples throughout this area of the world. The meetings, while of importance in the statesmanship of medicine, are strictly professional and not political, and emphasize the sharing of knowledge for the improvement of individual health and health conditions of all people. Permission has been given by USAF to transport certain foreign guests aboard USAF aircraft and their attendance has been paid for by certain revenues of the meeting, such as advertising in the programs as well as space allocations to ethical companies to display various medical items of their manufacture. These meetings have been held semiannually since early 1955, and not only have many strong friendships been built between physicians of the United States and foreign doctors, but also, and of equal importance, friendships have developed and strengthened among the physicians of the various friendly Asiatic countries. This has provided a strong tendency within these countries to replace former hates and suspicions with friendship, mutual respect, and understanding, together with an appreciation of the problems and degree of skill of each other.

The surgeons at all Pacific Air Forces bases have been active in *promoting public health* in the areas surrounding their bases.

(1) The Director of Medical Services, Itazuke Air Base, Japan, initiated action to found a *USAF-Japanese Medical Association* to which all USAF physicians stationed at Itazuke and Japanese physicians residing in Fukuoka City belong. The joint medical association meets alternately at the Itazuke Hospital and in Fukuoka City, usually at the School of Medicine, University of Kyushu. Formal and informal presentations of mutual interest to both groups are given at each meeting. The presentations have included papers on tuberculosis control, venereal disease control, mosquito control to assist in controlling Japanese B encephalitis, potable water supply, sewage disposal, food preparation, among many others.

(2) Also at Itazuke a joint *USAF-Japanese Nursing Association* has been founded and great progress has been made in mutual understanding and friendship between these two groups of dedicated women. Study groups in maternal and child health and welfare are in progress in addition to many other items pertinent to group study.

(3) At all bases in Japan and Korea an active *mosquito eradication program* has been instituted by mutual agreement between the USAF base authorities and the authorities of the municipalities of the areas surrounding the bases. Such programs have permitted widespread instruction to the nationals of the country through the combined efforts of USAF physicians, sanitarians and engineers and their counterparts within the municipal governments.

(4) *Joint venereal disease control programs* have been developed in Japan, Korea, Okinawa, Taiwan, and the Philippines. These programs are a good example of combined effort of the USAF Medical Department and the countries within which USAF personnel are stationed, and the joint programs have been

effective in preventing spread of disease within the native population as well as providing an excellent opportunity for health education to the native population.

(5) The fifth epidemiological flight has been of excellent service to the various countries of the Far East. During the early days of the *Asiatic influenza epidemic* in Hong Kong and the Philippines, members of the fifth epidemiological flight were dispatched to Hong Kong and to the Philippines to assist in evaluating the epidemic and rendering assistance in formulating health education programs for the native population. The materials utilized early by the 406th Medical General Laboratory in Japan and later forwarded to Washington for study were collected through the endeavor and with the assistance of the fifth epidemiological flight.

The fifth epidemiological flight has additionally assisted in *stream pollution studies* in Japan and this has assisted the Japanese nationals to become economically more secure by utilizing the studies to eradicate certain hazards to marine life which were diminishing the numbers of fresh water fish within many streams.

(6) The studies by many USAF hospital laboratories in the Far East have permitted education of the farmer in the appropriate *use of night-soil fertilization of crops*, with the result that increasingly fewer parasite ova are found in the soil and on the products of the soil. This method of health education is of great benefit within those countries where night-soil for centuries has been the important source of nitrogen in fertilization. Initially, the USAF would not permit the purchase of produce grown under conditions of night-soil fertilization. However, through laboratory study it was determined that if night-soil fertilizer was not placed on the plants or soil after approximately 60 days before harvest, the ova count in the produce fell to an acceptable level and was accepted by the USAF for consumption after proper preparation. During the past 2 years it has been reported that many farmers have accepted this method of timing of fertilization with the result that the general health of the natives will improve due to diminished parasite infestation.

Consultants' activities in the Far East.—During the past 2 years, all USAF national consultants who have traveled through the Far East to visit PACAF medical facilities have been made available also to give lectures, teach, and examine patients in the Armed Forces and civilian hospitals of the countries in which they visited. This effort was made possible by the itinerary scheduled by the PACAF Command Surgeon and has been instrumental in solidifying friendships throughout the countries of the Far East. The national consultants have spoken to groups of medical students in Japan, Korea, Taiwan and the Philippines. It is believed that this portion of the consultants' visit should be enlarged upon for the future, since all of the consultants have been men of international importance and stature. Prior to 1956, so few consultants were made available to journey to the Far East that the program essentially did not exist. Such visits have now become of extremely great importance in the attempt to develop international friendships through medicine sponsored by the Pacific Air Forces.

Future programs in the Far East and Pacific.—All programs presently in existence within PACAF will be expanded as widely and as rapidly as possible within the resources available to the Command Surgeon, PACAF. Future programs planned for implementation include:

(1) *Expansion of internship and residency training* of civilian and military physicians from all the friendly Asiatic countries in USAF hospitals in Japan and the Philippines. Beginning April 1959, a residency training program in general practice will be instituted at the 6160th Hospital, Itazuke, Japan. Additional residents will be selected for training at USAF Hospital Clark, Clark Air Force Base, in the spring of 1959.

(2) A course in military public health and preventive medicine is being considered for implementation at Headquarters, Pacific Air Forces, under the auspices of the mutual assistance program and the command surgeon, PACAF. The trainees will be selected from Japan, Korea, Philippines, Taiwan, Thailand, Vietnam, and Cambodia. The course will be of 1 year's duration and will include all the facets of military public health and preventive medicine. It will include part-time attendance for one semester at the University of Hawaii; on-the-job training in the Department of Epidemiology, Department of Health, Hawaii; on-the-job training in entomology and parasitology, as well as didactic courses given by members of the fifth epidemiological flight and by the staff of the command surgeon, PACAF. During the year's course the attendees will devise, under supervision, a public health and preventive medicine program for

their own armed services. In addition, each student will give presentations to the staff of the commander in chief, PACAF, in order to better orient the staff members with the many problems in health, economics and customs peculiar to his own country. In this way it is felt that the friendship with these countries and the United States will be enhanced and, additionally, their friendship with each other will be solidified.

Value of oversea activities.—In the case of activities not identifiable as specific programs supported by special funds, as are reported by our oversea organizations, it is difficult to attach a dollar value. Such programs have been instituted by the Air Force because of a definite responsibility in the health of peoples of other countries from which mutual benefit through cooperation, service, or assistance may be derived. In most cases, the activities are part of normal operations of the Air Force in the theater, and no monetary saving would be realized should any of these mutual assistance programs be discontinued.

B. Department of the Army

Senator HUMPHREY. In the early months of this study the Department of the Army had helpfully made available to the subcommittee information regarding not only its own medical work overseas, but regarding the general context of world health in which it operates. Regarding the latter, more general material has already been drawn upon in earlier reports by the subcommittee.

There are presented below those excerpts bearing upon the Army Medical Service, as such, from a report dated December 29, 1958. It was conveyed by Frank B. Berry, M.D., Assistant Secretary of Defense (Health and Medical), from Col. R. C. Hullinghorst, then Deputy Special Assistant for Research and Development Affairs, Department of the Army.

CURRENT ACTIVITIES OF THE ARMY MEDICAL SERVICE RELATING TO WORLD HEALTH PROBLEMS [1]

* * * The Army Medical Service must maintain a small nucleus of individuals capable in those scientific areas which constitute the major problems of world health. This effort requires a continuing program of training and research, these two segments being necessarily mutually supporting and dependent.

Not only does military medicine have the opportunity, but it also has the responsibility, to train a segment of American medicine in those problems of global importance. Preventive medicine is an ingrained characteristic of military medicine and is also the basic approach required for a solution to mass and pestilential disease. The 80 preventive medicine specialists in the Army Medical Service constitute one of the largest groups of such individuals in Government today. Their number is being maintained by military sponsored training, supplemented by continued professional growth, particularly in oversea assignments. Rotation of selected career officers through specific inservice positions and through the Central American course in tropical medicine operated by Louisiana State University Medical School are further means of training and experience. Additional opportunities to develop the interest and capabilities of such individuals are being sought.

In addition to training in specialties of military physicians of allied countries, exchange scientists are also provided graduate training, particularly in laboratory techniques pertaining to virus diseases, at Walter Reed Army Institute of Research, and in special areas of pathology at the Armed Forces Institute of Pathology.

The research effort also provides support of training of small numbers of scientists and physicians in nutrition and infectious diseases through research contracts with medical schools, colleges, and universities as well as in-service facilities. Pertinent budgetary data for the medical research program of the past 3 years are summarized below in table 7.

As can be seen, concern with nutrition and infectious disease is reflected by over one-third of the available funds being used in these two areas, although

[1] Dated Dec. 29, 1958.

the total effort is still very small. The infectious diseases being studied include all those listed below as being of major world importance with the exception of leprosy, yaws, and blindness.

TABLE 7

DEPARTMENT OF THE ARMY—MEDICAL RESEARCH

Summary of pertinent budget data

[In thousands of dollars]

	Fiscal year 1957		Fiscal year 1958		Fiscal year 1959 authorized
	Authorized	Obligated	Authorized	Obligated	
Nutrition	1,548	1,548	1,338	1,355	1,500
Infectious disease	3,323	3,292	3,524	3,440	3,635
Subtotal	4,871	4,840	4,862	4,795	5,135
Percent	47	47	39	40	42
Total Army Medical Service Research and Development	10,450	10,400	12,397	12,331	12,100

Research and Development Group in Germany.—The Department of the Army maintains a Research and Development Liaison Group at Frankfurt, Germany, similar to the branch of the Office of Naval Research in London and the Air Force research unit in Brussels. All agencies support basic research in scientific centers through free Europe, and serve as points of scientific contact and exchange for their respective areas of research responsibility. Each is concerned with various aspects of research in practically all the basic sciences, that portion of the Army research related to the biological sciences being monitored by the Army Medical Service.

Extramural or contract research.—The extramural or contract portion of Army Medical Service research includes several activities directly associated with world health problems. Within the past 5 years, studies have been conducted in Central America, South America, Africa, the Philippines, Korea, Japan, and southeast Asia.

The intramural or inservice program has included studies in—

Afghanistan	Korea	Panama
Alaska	Libya	Puerto Rico
Borneo	Madagascar	Spain
India	Malaya	Taiwan
Iran	Mexico	Turkey
Iraq	Okinawa	Viet Nam
Japan	Pakistan	

While many of the studies were performed by field teams performing a particular research mission over a one to six months period, a more permanent and continuing research effort is represented by oversea research units. The Army Medical Service maintains four oversea research units, participates with the Public Health Service in operation of a fifth, assists to a limited extent in partial staffing of one and actively collaborates with a second Naval Medical Research Unit. A brief review of certain of these activities follows:

Tropical Research Medical Laboratory, San Juan, P.R.—This unit was established in 1950 in the building erected during World War II for the Antilles Department Medical Laboratory. The present activities are in collaboration with the University of Puerto Rico Medical School, the Secretary of Health of the Territory, and military and civilian physicians and medical facilities. Studies have included such problems as leptospirosis, diarrheal diseases, worm and protozoal infestations, schistosomiasis, filariasis, deficiency disease (tropical sprue), and malnutrition. In addition to military and civilian personnel, the present staff includes a professor of medicine on sabbatical leave and a Filariasis Research Unit assigned by the Bureau of Medicine and Surgery.

406th Medical General Laboratory, Camp Zama, Japan.—This unit was established in Tokyo in the immediate postwar period, moving to its present location in 1955. The reputation of this unit is well-established in research circles on the basis of its scientific contributions on disease problems through-

out the Far East. It has also served as a center for scientific exchange, and for training of scientists and technicians from Japan, Korea, Okinawa, Taiwan, Philippines, and other countries. The major areas of research have included encephalitis, diarrheal diseases, epidemic and scrub typhus, worm infestation, hemorrhagic fever, and schistosomiasis. For the past 2 years, continuing reductions in military manpower and funds have required a consideration of deactivating this Army unit. Protestations from a Prefectural Governor and an American Consul General have led to suspension of such action. This unit and its personnel as individuals have collaborated with and assisted the WHO, the Pacific Science Board, the National Research Council, the National Institutes of Health, the Department of Agriculture, the Smithsonian Institution, and other governmental and nongovernmental research activities.

U.S. Army Medical Research Unit, Kuala Lumpur, Malaya.—In 1948, the Army Medical Service undertook continuation of studies in certain of the disease problems encountered in the southwest Pacific and southeast Asia. Through collaboration with the reestablished Institute for Medical Research in Kuala Lumpur, field teams from Walter Reed Army Institute of Research conducted studies on health problems of that area, spending 1 to 5 months in Malaya each year. In 1952, a research unit was established in residence. With establishment of the Federation of Malaya, the contribution of the unit to the health and welfare of the people of that country was recognized, and its continuation was requested. Some of the past activities include control and treatment of scrub typhus, treatment of typhoid fever, studies of leptospirosis, encephalitis, fevers of unkown origin, malaria and filariasis.

Middle America Research Unit, Ancon, C.Z.—This small unit was established in early 1958 as a joint effort of the U.S. Public Health Service, Army Medical Service, and the Bureau of Medicine and Surgery. Even though small and young, this group has shown promise of playing an important and expanding role in medical research in health problems of the Western Hemisphere. Its research interests center on the virus and fungus diseases of the area.

Navy medical research units, Cairo, Egypt, and Taipeh, Taiwan.—The Army Medical Service has participated in small part in staffing the former and in collaborating with the latter through the 406th Medical General Laboratory and U.S. Army Medical Research Unit (Malaya). A free and mutual understanding offers assistance and support of any Army medical research task force by these Navy units. The reverse is also true as regards Army medical research units.

An oversea research facility cannot be economically supported as a completely self-sufficient scientific institution. Furthermore, while personnel are available to staff such facilities, they naturally desire a basic research institute in the United States to which they can return after a reasonable period of oversea assignment.

Walter Reed Army Institute of Research, Walter Reed Army Medical Center, Washington, D.C.—Acts as a central reference laboratory for support of oversea research units and within the Army Medical Service is one of many activities which provide a "home base" for the special type of researchers who are interested and willing to spend major portions of their lives exploring some of the major problems of world health and assisting in their solution.

U.S. Army Medical Research and Nutrition Laboratory, Denver, Colo.—Provides, in a similar manner, the laboratory and personnel support for the survey performed by the Interdepartmental Committee on Nutrition for National Defense.

The Armed Forces Epidemiological Board.—No discussion of world health or infectious disease can be complete without mention of this outstanding group of American scientists. Before our entry into World War II, a Board for the Investigation and Control of Influenza and Other Epidemic Diseases in the Army was organized. In addition to advising and guiding the preventive medicine efforts of the Army throughout the war, this group actively participated in research and field investigations. They have continued in an advisory role to the three military departments, stimulating and advising on the Army extramural research program related to infectious disease. In this activity, the AFEB has played an active role in maintaining a continuing interest and activity in research related to infectious disease.

C. Department of the Navy

Senator HUMPHREY. Two Naval Medical Research Laboratories overseas have become very appropriately world famous. They are the teams in Taipei, Taiwan, and in Cairo, United Arab Republic. These teams—Naval Medical Research Units 2 and 3—are inspiring symbols of American medical science and American humanitarianism.

In order to help secure information on both of these fine programs and on related Navy Department work, I had forwarded to the Navy the initial 9-page outline (see pp. 1208 ff), citing the subcommittee's interest. Our project director had prepared this outline in September 1958 and circulated it among the various Federal agencies, as indicated on page 1207.

The Department of the Navy, in reporting to the subcommittee, followed the outline closely and presented its report, seriatim, in response to the specific questions, as conveyed by the outline.

The department included a series of helpful exhibits, as did the other services. To conserve space, only one of the Navy's exhibits is reprinted in the present volume. The other exhibits by the Navy, the Air Force, and the Army proved very useful, however, for the subcommittee's understanding.

EXHIBIT FROM THE DEPARTMENT OF THE NAVY [1]

FOREWORD

The Navy medical activities are carried out for support of the fleet. Indirectly, they have a major effect on the foreign populations with which the fleet comes in contact. The search for medical information, on which is based the preventive medicine program, treatment, and logistic planning, is unclassified and freely disseminated to the areas concerned. The preventive medicine units aid and stimulate communicable disease control and improvements in environmental hygiene as a natural and needed effort to protect the health of the fleet. Training of scientists and personnel of friendly foreign nations is a sound method of promoting the military effectiveness of our potential allies. Missions of mercy in times of epidemics and disaster yield medical information on methods of epidemic control and promote goodwill and support for fleet activities. Individual consultations and aid take a similar place in the program, and cooperation with other agencies of the Government and world health organizations provides outlets and opportunities to accomplish the Navy mission.

Medical officers of the Navy are in a unique position to promote friendly feeling and scientific development. The common medical interests and primary objectives lack the military and political connotation. Promotion of health answers a desire and need of all peoples. It gives a basic area of agreement upon which friendly relations can be developed.

The assessment of the Navy efforts on the basis of the outline submitted by the subcommittee of the Committee on Government Operations is difficult Personnel are not assigned or funds budgeted for promotion of foreign health. It will be possible to point out the activities that are being carried on and show the amount spent and the relation and coordination of these activities with other agencies.

This report will present answers to the questions of the outline as far as applicable.

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[1] Prepared in December 1958.

STUDY OF INTERNATIONAL HEALTH PROGRAMS UNDER SENATE RESOLUTION 347, 85TH CONGRESS

QUESTIONS ON U.S. AGENCIES (6B)

Activities.—What precisely is being done, when, where, by whom, at what cost, and with what objectives in mind?

(1) The Navy maintains two oversea medical research laboratories—the Naval Medical Research Unit No. 2 (Namru–2), at Taipei, Taiwan, and the Naval Medical Research Unit No. 3 (Namru–3) at Cairo, Egypt. These laboratories are organized under contracts with the Taiwan and Egyptian Governments which have a 20-year duration. These research units were established with the objectives of *studying diseases* epidemic and endemic to the countries where they are located and to adjacent areas; *training medical and technical personnel* in problems of exotic and tropical diseases; and *collecting medical information* for the fleet and the countries in which they are located. (See exhibit 1.) The cost and personnel for these units are as follows:

Personnel, Namru–2	
Navy officers	7
Navy enlisted	10
U.S. civilian	1
Chinese civilian	[1] 83
Total	101
Budget, Namru–2:	
Fiscal year 1957	$167,300
Fiscal year 1958	136,339
Public Law 480 funds:	
Fiscal year 1958	[2] 103,000

Personnel, Namru–3	
Navy officers	10
Navy enlisted	18
U.S. civilian	2
Egyptian civilian	118
Total	148
Budget, Namru–3:	
Fiscal year 1957	$223,000
Fiscal year 1958	218,500

[1] Of total Namru–2, 65 Chinese civilians are paid from Public Law 480 funds.
[2] Does not include salary cost of military personnel.

Pay of Navy military personnel is not included in budget totals. Personnel figures are most recent available; they will fluctuate from month to month.

(2) The Navy maintains two preventive medicine units overseas—PMU No. 6 at Pearl Harbor, T. H., and PMU No. 7 at Naples, Italy. The preventive medicine units are set up to support the fleet in *promotion of health*, provide shipboard *consultation on health problems*, investigate and aid in *control of outbreaks of communicable disease* and promote *disease control and environmental hygiene* in areas with which the fleet is in contact. Promotion of civilian health in the areas of operation protects the health of the fleet. Types of activities affecting civilians are listed in exhibit 1, paragraph 2—j, k, l, m, n, and p (see pp. 389–390). The operating cost (allotment) and personnel of such units are as follows:

Personnel, PMU No. 6:	
U.S. Navy officers	6
U.S. Navy enlisted	6
Civilians	0
Total personnel	12
Allotment:	
Fiscal year 1957	[1] $3,250
Fiscal year 1958	[1] 8,520

Personnel, PMU No. 7:	
U.S. Navy officers	5
U.S. Navy enlisted	7
Civilian (Italian)	1
Total personnel	13
Allotment:	
Fiscal year 1957	[1] $18,000
Fiscal year 1957	[1] 17,932

[1] Does not include salary cost of military personnel.

(3) *Exchange arrangements for care of foreign nationals* concerned with replacement crews for ships. Because of problems with tuberculosis and other contagious diseases, a program has been instituted whereby such crews receive physical examinations, X-rays and necessary treatment. The results of this program are reflected in changes of attitudes and better medical practice in the countries concerned.

(4) The Navy has participated in *instruction of foreign military and civilian personnel* in the fields of preventive medicine, use of radioisotopes, research and laboratory techniques, construction of prosthetic devices and in clinical medicine. Such an educational program is carried at the Naval Medical School at Bethesda, Md. A class in preventive medicine has been conducted for

medical officers of friendly nations for the past 2 years and a class is being conducted at the present. The training is orientated to military preventive medicine but the principles are directly applicable to civilian public health activities to which many of these men return.

Training in construction of prosthetic devices has been carried on as a result of visits for promotion of rehabilitation to Korea, Mexico, and Colombia. Capt. T. J. Canty, orthopedist at the Prosthetic Research Laboratory, Oakland Naval Hospital, California, has aided a number of countries in setting up their own programs.

The U.S. Naval Hospital, Yokosuka, maintains an *intern program for Japanese medical personnel.* Such personnel have been readily accepted for further training in the civilian hospitals in the United States. The research laboratories have a training program in research and paramedical specialties and have been instrumental in helping local physicians in securing advanced training in this country.

Examples of these ongoing programs are shown in exhibit 1, paragraph 2–b, w, and x.

Funding cannot be determined as the costs are absorbed by ongoing institutions which maintain their basic programs. Public Law 480 funds are used by Namru–2 in its program of graduate education.

(5) *Scientific information* is given to foreign countries by exchange of scientific reports and presentation at meetings. The Navy has had representatives at meetings ranging from Beirut to Bangkok. Scientific papers are presented and information exchanged. The objective of such exchange is to stimulate mutual scientific advancement. Meetings such as the Middle East Medical Assembly in Beirut, Lebanon, and the meeting in Bangkok of the Ninth Pacific Scientific Assembly are both instructive and bring good will.

(6) *Missions* have been sent to foreign areas *in times of epidemic and disaster.* The mobility of the fleet, the availability of trained and professional personnel, and experience in handling large groups of people provide a unique source of readily available and useful personnel. In the past the Navy has participated in flood control of hurricanes in Honduras and Mexico. Namru–3 aided the Egyptian Government in the cholera epidemic. Recently, Namru–2 participated with other government agencies in control of cholera and smallpox epidemics in East Pakistan and Thailand.

To assess the financial situation in the foregoing would be interesting. For instance, in a Namru–2 visit to Thailand and East Pakistan, the Navy provided men, laboratory equipment and supplies. The Air Force provided the transportation, and ICA used counterpart money to pay the per diems. The Navy effort was one of several which were combined in the overall mission. The Embassy, military, U.S. Public Health Service officers and ICA pooled resources to accomplish the purpose. The Navy was able to do research, gain training and contribute its part.

(7) *The Navy has lent its officers* to foreign governments to aid in establishment of public health facilities. Capt. Thomas Canty, MC, USN, has participated in visits to Korea, Mexico, and Colombia where he has aided the local people in establishing rehabilitation hospitals and has trained personnel to work in them. Captain Ord was loaned to the Peruvian Navy to reorganize its medical department. Lt. Comdr. J. Banta made a public health survey in the Yemen. Mr. Harry Hoogstraal, scientist at Namru–3, is a consultant to FAO. Dr. Erick Traub and Chief Hospitalman Capps were loaned to FAO and the Venezuelan Government to work on hoof and mouth disease. Comdr. J. Millar was loaned to the Leonard Wood Memorial to participate in the survey on therapy of leprosy.

Captain Losee, DC, USN, is in New Zealand for 3 years working on dental caries. Dental caries is a major problem to the Navy and this provides a unique opportunity to use this specialist's abilities and further his research. Lt. William Looney, MC, USNR, was assigned to Namru–3 to implement an atoms for peace program in Egypt. Exhibit 1, paragraphs 2–a, b, c, g, h, and x illustrate a few of the missions. Such activities are carried on as the occasion demands and on request through the State Department and the Secretary of the Navy. Estimations on cost in any one year for such activities is difficult.

Authority.—Is there a clear statutory and administrative basis for activities?

Yes. The activities carried out by the Navy Medical Department are covered by naval regulations which provide for the establishment of research facilities and other units. Individual efforts are authorized by the Secretary of the Navy on request of the executive branch of the Government.

Efficiency.—How are the respective international health officers of the departments and agencies using their manpower and other resources to fulfill their assigned mission?

This question is not applicable; however, the Navy has carried on the work presented in answer to question one by using existing facilities and personnel. The results concerning foreign health problems are the indirect result of carrying out the Navy's primary mission.

Division of labor.—How has manpower been apportioned in order to achieve goals?

The question is not applicable. The Navy's goal is not the promotion of foreign health. The effects achieved are related to the Navy's efforts to secure medical information for operational purposes and cooperation with other Government activities.

Coordination.—To what extent and through what means may prompt and continuous coordination be effected?

Continuous coordination is maintained through Navy liaison officers. Members of the Bureau of Medicine and Surgery have been able to maintain liaison with other interested agencies of the Government by direct contact. The research units maintain liaison with such agencies as ICA and WHO when working in the same area. Coordination in such ventures as the mission to Bangkok, Thailand, is undertaken and carried out by the Embassy or its designate.

Priorities.—What, if any, is the system of priorities in goals and expenditures?

Not applicable.

Private and public.—As indicated earlier, what are the existing relationships between private and public activities in various fields?

Relations with public organizations have been successful. The Bureau of Medicine and Surgery through ONR had a contract with the Rockefeller Foundation for employment of scientists at Namru–3. Contracts are now in effect with Northwestern and Chicago Universities for employment of scientists. Cooperative projects are being carried out with the WHO, and Egyptian and Taiwan Governments. A program of exchange of specimens and information is maintained between the research units and clinical facilities of the Navy and universities and medical and other scientific organizations of the areas. Namru–3 conducted a joint expedition involving scientists from South Africa, British Colonial Service and the U.S. Public Health Service.

Various activities of the research units are defined and agreements drawn up by the American Embassies of the countries involved and are set up as joint operations in which the country where the unit is located participates in the operation by granting the land or building space, taking part in projects and providing consultants. Other activities have been carried on by the Medical Department at special requests of the Ambassadors of the countries involved.

Counterpart currencies. The only counterpart currencies that have been used are those provided under Public Law 480 funds for Namru–2 and expenses for per diem of investigators in Thailand and East Pakistan. Such funds were provided by the U.S. operations missions of these countries.

Modern tools. Modern tools, methods and equipment are being utilized insofar as necessary and feasible. The laboratories in foreign areas are equipped with proven modern equipment. Electronic computers and complex electronic equipment are not feasible for use because in most instances the problem investigated does not require such instrumentation for the accomplishment of the objectives. Maintenance of such equipment in outlying, isolated areas is extremely difficult, and information gained from such use would not justify the expense involved.

EXHIBIT 1

RELATION OF MILITARY MEDICINE TO INDIGENOUS POPULATIONS IN FOREIGN AREAS

1. Military medical activities of the Navy affect indigenous populations of foreign areas through several types of military operations. Individual physicians and dentists have acted as consultants and investigators in foreign countries. The Naval Medical School at Bethesda has provided training for foreign military and civilian scientists. The preventive medicine units have cooperated with local authorities to take measures for improving sanitation and preventing disease. The research units produce information useful to the public health and medical practitioners in the areas adjacent to their location and cooperate with other governmental and world health organizations.

2. The following examples which are given of activities of interest to foreign populations are presented briefly to illustrate how such effects are brought about:

(*a*) In the period of April 16–24, 1955, Capt. Thomas J. Canty participated with Dr. Howard Rusk and Eugene J. Taylor, New York University, in conducting a seminar for the Armed Forces of Colombia on the subject of rehabilitation. A series of lectures were given. A plan for development of rehabilitation activities was worked out and has resulted in a training program for doctors and technicians at the U.S. Naval Hospital at Oakland, Calif., and Walter Reed Hospital.

(*b*) Through the State Department and the Bureau of Medicine and Surgery, an amputee from Mexico City was provided care by the U.S. Naval Hospital at Oakland. Dr. Canty was invited to Mexico City to meet with the Mexican Rehabilitation Association in producing plans for a rehabilitation program in Mexico City. The results of the conference were expressed in a letter from Carlos A. Orellana, president of the Mexican Rehabilitation Association, as follows: "Permit me to take this opportunity of thanking you most kindly on behalf of the staff of the Direcion General de Rehabilitation and members of this association for making it possible for Capt. Thomas J. Canty, Medical Corps, U.S. Navy, to visit Mexico and provide the technical assistance he has furnished us with in respect to the establishment of an orthopedic rehabilitation program and an artificial appliance production center in this country." The follow-up of this conference resulted in the establishment of a rehabilitation hospital in Mexico City. Admirals Hogan and Kenney and Captain Canty will visit Mexico City in November to participate in the dedication of this hospital.

(*c*) Capt. Harry C. Oard was loaned by the Bureau of Medicine and Surgery to the Medical Department of the Peruvian Navy to develop and establish a hospital, to reorganize the Medical Department and to act as consultant to the Government. Mrs. Gertrude Oard, Lieutenant, NC, USNR, cooperated with her husband. A hospital corps school was established. Mrs. Oard acted as an instructor in the school. Translation of the nomenclature of the joint Armed Forces statistical summary into Spanish was accomplished. A postgraduate training program for medical officers was instituted. The accounting system of the Medical Department was reorganized. A naval nurse corps was instituted.

(*d*) In December 1955 there was a translation of the handbook of the Navy Hospital Corps into German for use in training the German Navy.

(*e*) The Navy has established a tissue bank at the U.S. Naval Hospital at Bethesda. Dr. Hyatt, who is in charge, has presented the results of the use of preserved tissues and methods of handling freeze-dried tissue throughout Europe.

(*f*) The Hospital Corps handbook was turned over to the Turkish Navy for translation. An atlas of pathology which has been developed was also presented for use in the Turkish Navy. The joint Armed Forces medical catalog has been also used by the Turkish Navy.

(*g*) In a recent outbreak of cholera in Thailand, Captain Anderson, U.S. Navy, and Major Mandell, U.S. Army, demonstrated the use of the Sherer automatic injector to be used in the mass prophylaxis for cholera.

(*h*) One of the major problems of the Navy is dental caries. This condition is particularly apparent in New Zealand. At the request of the New Zealand Government, Captain Losee, U.S. Navy, who is an authority in this field, has been loaned there for a 3-year period to cooperate with a team of New Zealand scientists in carrying out research on this subject.

(*i*) The Naval Medical School at Bethesda has provided instruction in preventive medicine and isotope techniques to military and civilian physicians and technicians of foreign countries.

(*j*) The Preventive Medicine Unit No. 7 at Naples has established close liaison relationships with Italian civil and naval health authorities, routinely accepts and forwards quarantine declarations from visiting U.S. ships, and reports incidence of communicable diseases, receiving Italian morbidity reports in return.

(*k*) The Preventive Medicine Unit No. 7 carried out entomological surveys at Port Lyautey, Morocco, in 1958 and aided in setting up mosquito control measures necessary for malaria suppression. Similar studies were set up at Rota in Spain and in Naples, Italy. Cooperative efforts with the Italian dairy industry and the agricultural attaché of the American Embassy were carried out to secure an approved local source of milk.

(*l*) Missions of mercy were carried out in British Honduras and in Tampico, Mexico, after Hurricane Janet in 1955. Material aid was given in insect control and in the treatment of water supply, vaccination, etc.

(*m*) The Preventive Medicine Unit No. 8 in Yokosuka, Japan (now disestablished), conducted studies with the Japanese scientists in the malaria control program. They also aided in venereal disease control problems.

(*n*) A medical team composed of military personnel played a part in the medical supervision of evacuation of Vietnamese from North to South Vietnam following the fall of Hanoi in 1954, supervised refugee camps, and provided medical attention at the time of embarkation and during travel.

(*o*) After World War II the Navy operated a school for medical assistants and a school of nursing on Guam for young men and women of Guam, Samoa, and the Trust Territory Islands of the Pacific.

(*p*) The Preventive Medicine Unit No. 6 in Pearl Harbor has carried out the investigations on outbreaks of poliomyelitis in the Marshall Islands.

(*q*) The Naval Medical Research Unit No. 2 has conducted missions to East Pakistan to provide aid in an epidemic of smallpox and cholera. A laboratory for diagnosis was set up. Work was carried out on the dried smallpox vaccine. Demonstrations on treatment were given to physicians.

(*r*) An outbreak of cholera in Bangkok, Thailand, occurred in 1958. Namru-2 set up a demonstration laboratory and ward and conducted research on cholera in Thailand. In addition to teaching in the laboratory, a series of symposia were carried out in Thailand on the subject of treatment of malaria and methods of treatment were discussed. They were well attended and very well received. Funding of the per diem of the investigators was from the U.S. operations mission. Travel was provided by the Air Force. Logistic support was received from the fleet.

(*s*) Namru-2 is conducting a series of studies on diseases that are extremely important to Formosa. They studied the use of gamma globulin in an outbreak of rubella. They have cooperated with public health officials in the laboratory diagnosis of poliomyelitis. They are cooperating with the public health department in a study of the mosquitoes of Formosa. They have set up studies to investigate a condition on the island which is called blackleg (a form of dry gangrene). They have been studying the viral infections such as Japanese B. encephalitis and epidemic conjunctivitis. The activities of this unit have made an impact on Formosa and adjacent areas in which they have worked, and brought a large amount of splendid publicity and good will to the United States.

(*t*) Namru-3 in Cairo, Egypt, has had a long period of friendly operations with the Egyptian Government. It took part in the cholera epidemic in 1947–48 and aided in the diagnosis of developing methods for treatment. Two missions were made to the Yemen with primary interest in the diseases of the people and vectors of the diseases. A mission was made to Libya on the epidemiology and diagnosis of typhus. The unit has cooperated with the World Health Organization on poliomyelitis surveillance. They have studied schistosomiasis and are conducting a controlled study on treatment in cooperation with the Egyptian Health Department. They have investigated the late results and corpulmonal of schistosomiasis and occurrence of cancer of the bladder associated with the disease. Molluscacides have been studied for use in the control of schistosomiasis. Treatment of such diseases as typhus, undulant fever, etc., were studied in Egypt. Present studies are being conducted on the diarrheal diseases as to the etiology and prevention. A joint study will be conducted with the Egyptian Government on the causes of conjunctivitis and blindness associated with trachoma and conjunctivitis. Schistosomiasis and blindness are two major problems with the Egyptians.

(*u*) During the studies at Namru-3, publications have come out on the vectors of disease, one of which is on ticks, which have received worldwide recognition. The unit has conducted seminars, participated in by leading scientists of the world and of Egypt, where problems of interest to Egyptian doctors were discussed. Findings have been submitted to the Egyptian medical and public health journals.

All the information has been made available to the Egyptian Government. With the public health department, studies have been made with focus on plague in Asyut. Cooperation was given to the World Health Organization in a seriological study of diseases. In a demonstration health district, dental surveys were conducted and data made available to the Egyptian Government upon which a dental program could be built. When the U.S. operations mission (ICA) was present, cooperation was given to problems encountered.

(*v*) It is interesting to note that this laboratory was primarily set up to gather medical information on diseases in the Middle East and has received the support of the American Embassy and the State Department because of its per-

petuation of friendly relationships between medical scientists in this country and Egypt.

(*w*) Both Namru-2 and Namru-3 have conducted a training program for scientists who participated in the Fulbright program, have trained Egyptian, Syrian, and Chinese technicians, and have acted as liaison to secure training in the United States of physicians from Egypt. Namru-2 has a program of training in all its departments where physicians and scientists from Taiwan and contiguous areas will be trained in laboratory work and research.

(*x*) Namru-3 has given support to the atoms-for-peace program in Egypt. A Naval Reserve officer on active duty was assigned to the project. Two Navy technicians participated in the training of Egyptian technicians. Finally, this was reinforced by training technicians and medical men at the Naval Medical School.

3. In the foregoing, the points of interest developing from the Navy's routine medical program have been briefly mentioned. The units, which are primarily designed to secure medical information, produce information useful to the local population. The individual efforts of physicians and scientists in special problems occurring in free nations are taken care of as they arise as a method of promoting good will.

1. The Significance of Naval Medical Research on Trachoma

Senator HUMPHREY. The Navy report in the preceding pages may and should assume still larger significance in the eyes of our readers by a well-deserved additional reference at this point.

One of the subjects which has been under study by naval medical research—in this instance, on Taiwan—has been the disease of trachoma.

As pointed out in the third committee print, "The Status of World Health," over one-seventh of the world's population is believed to be affected by trachoma and infectious conjunctivitis. To succeed in relieving mankind of this blight in generations to come would be an achievement of incalculable magnitude.

In the April 3, 1960, issue of the Journal of the American Medical Association appeared an historic article on trachoma based on Namru-2 research. An editorial in that issue of the Journal acclaimed the report as—

> one of the most important papers in the field of ophthalmology * * * published by the journal in several years.

The reason is clear. This Navy research may represent a long-awaited link in the chain of discovery which can bring to an end the scourge of trachoma.

There follows the text of the JAMA editorial.

Editorial from the April 9, 1960, Journal of the American Medical Association

TRACHOMA

The report on trachoma in this issue (p. 1577) from the U.S. naval medical research unit on Taiwan is believed to be one of the most important papers in the field of ophthalmology published in the Journal in several years. It further confirms the recent work of the Peiping, China, investigators in isolating the virus which is now believed to be the cause of trachoma. The trachoma vaccine described appears to be entirely safe, after having been injected into 450 human subjects without untoward reactions. Although a preliminary report, it provides some evidence for optimism from the standpoints of both prevention and treatment of a disease which has blinded human beings for centuries and from which millions of people still suffer throughout the world. This contribution also supports the deductions of other investigators. It is concluded that trachoma viruses are related to the psittacosis-lymphogranuloma venereum group. However, they clearly stand apart from other human viruses of that group. The

authors found, too, as many authors have, that the trachoma virus was sensitive to some antibiotics and other drugs, including penicillin, oxytetracycline, chloramphenicol, a sulfonamide, and a nitrofurazone compound.

The World Health Organization's Expert Committee on Trachoma has insisted that the proof that a virus under cultivation is the cause of trachoma should be the production of typical trachoma in human volunteers after sufficient passages in culture to eliminate by dilution any virus of the original inoculum. This requirement of the Committee has been fully met, it is believed, by the investigators on Taiwan.

3. FOLLOWUP REPORT ON LIFE SCIENCES RESEARCH

Senator HUMPHREY. In October 1959 I asked the Department of Defense for supplementary information on oversea research programs in the life sciences. The following helpful response of January 6, 1960, was received from Orr E. Reynolds, Director of Science, Office of the Director of Defense Research and Engineering.

OFFICE OF THE DIRECTOR OF
DEFENSE RESEARCH AND ENGINEERING,
Washington, D.C., January 6, 1960.

DEAR MR. CAHN: Additional reference is made to a letter from Senator Hubert H. Humphrey to Dr. Cushing, dated October 14, 1959, requesting information from the Defense Department regarding oversea research programs in the life sciences.

The statistical information required by phase 2 of Mr. Humphrey's request is contained in enclosure 1. With regard to the third phase of the request, the data pertaining to the Air Force were provided in the compilation that was submitted to your office on November 25, 1959, entitled "European Office, Air Research and Development Command, Brussels, Belgium, Biosciences Contract Status, October 1, 1959."

For the Navy, the two contracts are for the Naval Medical Research Unit No. 2, Formosa. One is with the University of Chicago in the amount of $45,000 for virological studies in Far Eastern countries; the other is with Northwestern University, $23,800, for nutritional and clinical medical studies in Formosa and other Far Eastern countries. These are included for your information even though the two universities involved are American.

The list of oversea contracts for the Army is contained in enclosure 2.

It should be noted that through fiscal year 1959 the Defense Department had no program of research grants.

According to our records, this completes the information requested in Mr. Humphrey's letter of October 14, 1959.

Sincerely yours,

ORR E. REYNOLDS,
Director, Office of Science.

TABLE 8

OVERSEA LIFE SCIENCES RESEARCH OF THE DEFENSE DEPARTMENT, FISCAL YEAR 1959

	Full time personnel overseas for research procurement (1)	Full time back-up personnel in USA (2)	Research projects (3)	Research contracts[1] (4)	Overhead (salaries and travel) (5)	Research contract budget (6)	Percent ratio May 6 (7)
Army:							
European Research Office (Germany)	1	0	[2] 26	[2] 26	$13,500	$196,816	6.8
Medical General Laboratory (406), Japan	([3])	0	1	1	----------	22,500	----------
Navy: Naval Medical Research Unit No. 2 (Formosa)	([3])	0	2	2	----------	68,800	----------
Air Force: European Office, Air Research and Development Command (Belgium)	3	0	56	56	24,700	441,468	5.6
Total, Department of Defense	4	0	85	85	38,200	729,584	5.2

[1] No research grants in fiscal year 1959.
[2] We consider that projects and contracts are identical for purposes of this report.
[3] No full-time personnel involved.

TABLE 9

ARMY BIOMEDICAL RESEARCH CONTRACTS, OVERSEA PROGRAM, FISCAL YEAR 1959

European research office	Investigator, institution, and country	Project title	Contract number and amount
Germany	Prof. Dr. H. D. Cremer, Institut fuer Ernaehrungswissenschaft, University Giessen.	Studies Concerning the Requirement of Vitamin B_1 on Different Diets.	DA-91-508-EUC-374 $7,100
	Dr. med. R. Zahn Nierenlabor, Institut fuer Animalische Physiologie, Universitaet Frankfurt.	Mechanism and Action of Substances on the Mechanism of Blood Flow in Small Blood Vessels.	DA-91-591-EUC-921 $2,435
	Prof. Dr. G. V. Schulz, Institut fuer Physikalische Chemie, Universitaet Mainz.	Heat and Entropy of Dilution of Serum Albumin Solutions.	DA-91-591-EUC-980 $9,060
	Dr. H. Witzel, Chemisches Institut, Universitaet Marburg/Lahn.	Studies on the Antigenic Properties of Deoxyribonucleic Acids From Lupus Erythematodes.	DA-91-591-EUC-1043 $3,300
	Dr. F. Franzen, Medizinische Universitaetsklinik, Köln-Lindenthal.	Investigations on the Problem of a Subsidy for Pathophysiological Significance of Biogenic Amines in Sublethal Radiation Injuries.	DA-91-591-EUC-1160 $12,096
	Dr. med. Franz Franzen, Medizinische Universitaetsklinik, Köln-Lindenthal.	The Self-Intoxication of the Organism in Advanced Renal and Hepatic Insufficiency.	DA-91-508-EUC-252 $13,170
	Prof. Dr. A. Herrlich, Institut fuer Infektions-und Tropenmedizin, Universitaet Muenchen.	A Study of Strains of Variola Vera and Minor Viruses.	DA-91-591-EUC-996 $8,500
	Dr. G. Pfleiderer, Chemische Institut der Universitaet Frankfurt/M.	Investigations on Snake Venoms.	DA-91-591-EUC-1089 $6,000
	Prof. Dr. P. Holtz, Pharmakologisches Institut der Universitaet Frankfurt/M.	-----do----------	DA-91-591-EUC-1091 $2,200
England	Dr. T. E. Odgen, Institute of Neurology, The National Hospital, London.	Studies on Phenomena Associated With Cortial Lesion.	DA-91-591-EUC-1021 $1,500
	Dr. C. L. Cope, Department of Medicine, Postgraduate Medical School, London.	Adrenal Function Changes in Disease States.	DA-91-591-EUC-1055 $2,576

TABLE 9—Continued

ARMY BIOMEDICAL RESEARCH CONTRACTS, OVERSEA PROGRAM, FISCAL YEAR 1959—con.

European research office	Investigator, institution, and country	Project title	Contract number and amount
England—Con.	Prof. H. McIlwain, Institute of Psychiatry, University of London, Maudsley Hospital.	Chemical Machanism in Cerebral Functioning.	DA-91-591-EUC-882 $8,770
	Prof. Dr. G. Weber, University of Sheffield.	Primary Photochemical Reaction in Photosynthesis.	DA-91-591-EUC-1006 $7,420
	Dr. W. Klyne, Postgraduate Medical School of London.	Optical Rotatory Dispersion of Organic Compounds.	DA-91-591-EUC-1095 $3,584
	Prof. H. J. Eysenck, Institute of Psychiatry, Maudsley Hospital, University of London.	An Experimental Study of the Rate of Temporal and Spatial Inhibition in Hysteria and Brain Damage.	DA-91-591-EUC-1136 $8,340
	Dr. Robert Efron, Medical Research Council, National Hospital, London.	Correlation of Electrical Responses of the Cerebral Cortex.	DA-91-591-EUC-1139 $6,500
Austria	Prof. Dr. R. Bieling, Hygiene Institut, Universitaet Wien.	Studies on Meningo-Encephalomyelitis.	DA-91-591-EUC-1061 $6,200
Denmark	Dr. Fritz Buchtal, Neurophysiological Institute, University of Copenhagen.	Investigation of the Physiology of the Caudate Nucleus.	DA-91-591-EUC-943 $5,500
Ireland	Prof. J. D. Smyth, Department of Zoology, Trinity College, Dublin.	Techniques for the Cultivation of Parasitic Worms *in vitro*.	DA-91-591-EUC-957 $3,920
	Prof. John Harman, University College, Department of Pathology, Dublin.	Structural Stability of Erythrocytes in Anaemia.	DA-91-591-EUC-1070 $11,300
	Mr. G. W. P. Dawson, Trinity College, University of Dublin.	Study in Bacterium, S. Typhimurium, Spontaneous and Induced Mutations.	DA-91-591-EUC-1178 $4,900
Scotland	Dr. A. B. Wallace, Dept. of Plastic Surgery, Royal Hospital for Sick Children, Edinburgh.	Studies in the Post Traumative Patient.	DA-91-508-EUC-354 $8,120
	Prof. C. P. Stewart, University of Edinburgh, Dept. of Clinical Chemistry, Clinical Laboratory, Edinburgh.	Studies on Renal Trauma and Disease.	DA-91-591-EUC-920 $5,600
Netherlands	Dr. J. Ex, Psychologisch Laboratorium, Universiteit Nijmegen.	Investigation of the Process of Assimilation With Strangers to a New Living and Working Environment.	DA-91-591-EUC-1033 $7,000
Sweden	Dr. C. G. Heden, Karolinska Institutet, Stockholm.	Methodological Studies on the Fractionation of Biologically Active Components of Bacterial Cells.	DA-91-591-EUC-948 $18,325
	Prof. Arne Tiselius, Institute of Biochemistry, University of Uppsala.	Separation Methods for Biologically and Medically Important Substances of Large Molecular Weight.	DA-91-591-EUC-1025 $23,400
Japan: Medical General Laboratory (406).	Dr. Tamiya	Studies on Scrub Typhus	$22,500

4. REPORT ON TWO INTERDEPARTMENTAL MEDICAL GROUPS

Senator HUMPHREY. Dr. Frank B. Berry, Assistant Secretary of Defense (Health and Medical), has been a principal contact within the Department of Defense for our subcommittee's inquiries. Dr. Berry has been very cooperative, as has been each of the services.

There is reprinted below an additional reply from Dr. Berry as to the work of his own office in connection with two interdepartmental medical organizations of which he is chairman.

A. Letter from Dr. Frank B. Berry

ASSISTANT SECRETARY OF DEFENSE (HEALTH AND MEDICAL),
Washington, D.C., September 24, 1958.

DEAR SENATOR HUMPHREY: I am more than happy to reply to your letter and hope that you will call upon us for complete cooperation. There are two international medical organizations of which I am chairman. The first is a Joint Commission on Aviation Pathology in which the participants are the United Kingdom, Canada, and the United States. This is under the direct chairmanship of the Armed Forces Institute of Pathology and is operated purely within their own funds. A meeting was held in this country last year and the meeting this year is being held in Great Britain. The aims are chiefly the prevention of aircraft accidents with especial reference to the human element (the pilot) as to preexisting disease and his environment.

The second program you have already noted—the Interdepartmental Committee on Nutrition for National Defense. Here we have a growing program, started under difficulties, but now widely accepted. Dr. Arnold E. Schaefer of the National Institutes of Health is the executive director with offices there and I am the Chairman, because it originally started within the Department of Defense and the Department appropriates the larger share in the budget. Both of us may be considered as liaison officers with your group. The budget for 1958 was $299,000—$99,000 for administration and $200,000 for the program itself. The 1959 budget is $378,000—$103,000 for administration and $275,000 for the actual program.

* * * These groups have met with enthusiastic reception in all of the countries where surveys have been completed and the physicians and scientists on the teams have contributed immeasurably to friendship in the host countries. As a member of the government in one Near East country remarked to me, "Of course we are glad to have your financial grants, but we wish you could give more of yourselves," and then he cited the fine work of the nutrition team. We have had letters from our Ambassador Fletcher Warren in Turkey, the former Ambassador to Libya, the Honorable John L. Tappin, and President Syngman Rhee of Korea, telling us how much the work of our teams has been appreciated.

Another facet of the problem, in which the educational section of Department of State, representatives of ICA and our office have become interested, is how to fill in some of the loopholes that now exist, and I enclose a copy of some material that we are presenting to OCB for this purpose.

I shall be most happy to appear before your committee at any time for question and further explanation of this interdepartmental committee which has produced such big returns on a small investment in funds and also carries back throughout our country firsthand information of what we are doing in different countries in the way of a real friendship program.

A copy of your letter and attached brochure on the study of international health programs has been forwarded to the three armed services for compilation of requested information and data as pertains to each of the services. Their replies will be coordinated by this office and forwarded to your committee as requested.

You will be advised at an early date of the names of the liaison officers to be assigned by the three armed services.

Sincerely yours,

FRANK B. BERRY, M.D.

B. Nutrition survey in Chile

Senator HUMPHREY. An indication of the work of one of the organizations referred to by Dr. Berry is contained in a news article in the May 21, 1960, issue of the Journal of the American Medical Association.

The article confirms the broad variety of research personnel from many different disciplines who cooperate in the survey of the nutritional status of a particular country, in this instance, Chile. I personally believe that the assembly of so outstanding an array of scien-

tific talent speaks very well indeed for the interdepartmental committee and for the interests of our Nation and of our friends abroad.

The article follows:

From Journal of the American Medical Association, May 21, 1960

PUBLIC HEALTH SERVICE

Nutritional survey in Chile.—In response to a request from the Government of Chile, a team of U.S. experts began on March 28 a 70-day survey of the nutritional status of the Chilean population. The purpose of the study is to assess the current standards and needs of the people, to formulate practical recommendations for improvement consistent with the country's resources, and to provide technical assistance for the development of standard ration requirements and local nutritional services.

The survey was arranged by the Interdepartmental Committee on Nutrition for National Defense, an agency of the United States which operates administratively through the National Institute of Arthritis and Metabolic Diseases, National Institutes of Health, Bethesda, Md. Team members include physicians, biochemists, food technologists, and others who will work side by side with Chilean personnel during the survey. Laboratory equipment and supplies, which have already been shipped to Santiago, will be turned over to the Chilean Government under mutual assistance program procedures on completion of the survey.

U.S. members of the survey team are Dr. William F. Ashe, Jr., head of the department of preventive medicine, Ohio State University, Columbus, Ohio, survey director (clinician); Dr. Carl A. Baumann, of the college of agriculture, department of biochemistry, University of Wisconsin, Madison, Wis., deputy survey director and laboratory director; Lt. Col. Marion E. McDowell, M. C., of the U. S. Army Medical Research and Nutrition Laboratory, Fitzsimons Army Hospital, Denver, clinician; Dr. John H. Browe, director of the bureau of nutrition, State of New York Department of Health, Albany, N.Y., clinician; Dr. Elizabeth H. Voris, of Bethesda, Md., clinician; Mr. James H. Blanton, of the Medical College of Alabama, University of Alabama Medical Center, Birmingham, Ala., medical assistant; Dr. Ronald R. Johnson, of the animal science department, Ohio Agricultural Experiment Station, Wooster, Ohio, biochemist; Dr. Leonard W. Aurand, of the department of animal industry, School of Agriculture, North Carolina State College, Raleigh, N. C., biochemist; Dr. LeRoy Voris, executive secretary of the food and nutrition board of the National Research Council, Washington, D. C., nutrition officer; Dr. Paul L. Pavcek, of Milwaukee, nutrition officer; Dr. Clinton O. Chichester, of the College of Agriculture, University of California Agricultural Experiment Station, Davis, Calif., food technologist; Mr. Edwin B. Bridgforth, of the School of Medicine, Vanderbilt University, Nashville, Tenn., statistician; Dr. Carol J. Witkop Jr., of the National Institute of Dental Research, Bethesda, Md., dentist; Miss Joan M. Gaiser, of the National Institute of Dental Research, Bethesda, Md., laboratory technician; and Mr. William A. Drake, of the department of photography, Ohio State University, Columbus, Ohio, medical photographer.

5. U.S. ARMED FORCES EPIDEMIOLOGICAL BOARD

Senator HUMPHREY. Once again, we turn to the Journal of the American Medical Association for an account which underlines the significance of official work.

In this instance, there is printed below the text of an article in the March 5, 1960, issue of the JAMA by Dr. Thomas Francis, Jr., of the Department of Epidemiology and Virus Laboratory, School of Public Health, University of Michigan, Ann Arbor.

Dr. Francis presents a comprehensive account on the achievements of preventive medicine, and, in particular, of the Armed Forces Epidemiological Board of which he is past president.

Brief prior reference to the important work of this board was made by the subcommittee in the sixth committee print in our series on pages 13–14.

A. Article by Dr. Thomas Francis, Jr., from Journal of the American Medical Association, March 5, 1960, issue

Research in Preventive Medicine

(By Thomas Francis, Jr., Ann Arbor, Mich.)

Preventive medicine is at present a diffuse term meaning different things to different persons. At times it appears no longer to possess a central theme or philosophy. A change in name, as some have suggested, would bring little benefit since it might further obscure the intent. At times the field appears to be interpreted so broadly that care of the sick and disabled—that is, supportive and reconstructive medicine—occupies more attention than the primary objective. Of course, all of medicine, and I mean all sciences contributing to medicine, has a preventive aspect. But the virtue of preventive medicine lies in the concentration of attention on the maintenance of health and the prevention of disease. As Alan Gregg expressed it, "Preventive medicine has the charm and bewilderment and the opportunity of being virtuous, because applying preventive medicine is behaving as we should behave in the light of what we know of the vast capacities of medical science." Perhaps our complaints that preventive medicine is not fully appreciated tie in with the realization that virtue is not easily maintained and that we think as we live. Our problems of recruitment may relate to the fact that we spend more time in expounding virtue than in developing it.

Concept of health

Man's progress toward civilization has been closely intertwined with his development of measures to protect life. Some of the adversaries could be recognized even by primitive man, since they related to human behavior and aggression, but disease was understood only as a harmful effect of certain associations revealed by experience. The level of our current knowledge is not much more advanced. Descriptive information has increased tremendously, but we have gained only a slight foothold in understanding the mechanisms involved in disease processes. The concept of a specific causative factor has been amply demonstrated but constantly challenged in cases in which the etiology of a disorder is yet unproved. We have derived empirical knowledge and procedures with which to limit the incidence or reduce the severity of some disorders, while others increasingly mount the walls of our ignorance. It is obvious that we have more effectively eliminated the buffalo, the whooping crane, and the trailing arbutus than we have obliterated the causes of disease. It is true that some regions of the world are gaining in this struggle; but in other areas unrelieved burdens still exist that constitute continued risks to health and peace in this mobile, shrinking world. Conversely, certain disorders of increasing damage to the longer lived, more favored populations appear to be diminished by the conditions of life in crowded areas of economic want; this emphasizes the relativity of health, global or individual, and points out that we are scarcely on the threshold of understanding the problems of either health or disease.

Man is, above all, a biological creature living in environments which expose him to an endless array of potentially pathogenic agencies. The effects of some of these are known, but new ones arise as our explorations of the universe enlarge, as we disturb natural adjustments, as we synthesize new products and new conditions of existence, and as we change our way of life. It cannot be expected now or later that a functioning community can be devised which is spared from all harmful exposures—like germ-free animals maintained in stress-proof isolation.

Health, then, may be considered a state of adequate structure and function, with adequate reserves. This state is being constantly bombarded by innumerable potentially pathogenic stresses, so that each person is in a state of potential disorder. The outcome depends on the ability of the person's reserve to absorb the stress without depleting his range of tolerance, or to respond with additions to his reserve to enhance health and resistance to the harmful influence. It is readily apparent that small shocks might be effectively buffered, while excessive insult or continued exposure might well break through. Variation in the threshold of tolerance among individual persons and at different ages is also easily pictured. Conversely, disease is a reaction to a stress which extends beyond the bounds of individual reserve and adaptability. (This can also be

applied to a community.) In this sense, we would measure disease or disease potential in terms of health rather than defining health in terms of disease, and our efforts would be directed toward preservation of the norm.

Unfortunately, the available measurements of health are few. Despite bold efforts to proclaim a theme of "positive health," little information regarding the maintenance of health which has not derived from recognition that a certain procedure prevented disease exists today. Consequently, we have no adequate body of measurements of health that are not based on the absence of a disorder. In fact, we describe our present health activities as vaccination against smallpox, use of fluorides against dental caries, or something that is "good" for heart disease. Our current ability to detect and identify disorders depends largely on their severity; what we consider incipient is an already far-advanced biological imbalance. Our so-called health statistics are commonly disease or death statistics. In fact, one of our most disturbing practices is to consider the importance of a disease in terms of resultant deaths, as if we were somehow to evite the inevitable. We split life and the family into convenient specialist categories to make the recording of a sequential, comprehensive view of the individual person's or group's experience difficult. We witness the tendency to move blithely under the cover of a slogan, or in response to the call of the huckster to realms of custodial care or administrative busyness with the end stages of disorder, while we withdraw from profitable investigation and exploitation in the areas of their causation and prevention. It must be constantly repeated that research is the only hope for the development of preventive medicine—and now I am speaking of preventive medicine literally—namely, prevention of disease. Research offers a new face to the field practice.

Areas of preventive medicine

The areas of true prevention now available may be summarized under three headings.

First, protection from chemical and physical exposure. This applies particularly to occupational health—one of the oldest and a continued area of interest.

Second, prevention by correction of dietary deficiency or excess. This area has a steady range of development as knowledge of the specific significance of various components becomes known and processing changes the character of natural foods.

Third, prevention of infectious disease by specific measures and sanitary social procedures. A limited number of severe, epidemic communicable diseases are effectively prevented by specific vaccination. A few bacterial infections can be prevented by drug or antibiotic therapy, if properly used. Some are limited by sanitary barriers under stable peacetime conditions or by environmental control. Entirely new agents of large epidemic potential are being recognized, and still others can be expected, but none has been eradicated.

Genetics is a field in which knowledge is increasing but which, as yet, is put to limited use in preventive procedures.

The tendency of preventive medicine to move away from unfinished business is nowhere more clearly emphasized than in the field of infectious disease. And nowhere is there a more precarious balance with respect to present preventive procedures. The return of the staphylococcus and other resistant organisms, the development of new antigenic strains, the reliance on sanitary facilities which can be easily disrupted, the ready possibility of importation of infections, the recurrence of epidemics when vaccinations are not thoroughly applied—all emphasize the narrow margin of safety in our safeguards.

The commonly repeated assurance that infectious disease is conquered is simply not in keeping with the evidence. This is emphasized in the compilations of incidence and death presented by Halbert Dunn in "Health and Demography" (1956). Up to 45 years of age, the 12 leading causes of illness are infections, with the exception of accidents, some "functional" digestive disturbances, and some of the disorders of the genital tract and breast in women aged 15–45 years. Beyond the ageo f 45 years, infection still constitutes a major factor as the immediate cause of illness, although an increasing amount of illness relates to disorders which are referred to as noninfectious.

The U.S. National Health Survey reports that in the year July 1957–June 1958 45 percent of all bed-disability days, 36.5 percent of work-loss days (for persons 17 years and older), and 67 percent of school-loss days (for persons aged 6 to 16 years) were caused by acute respiratory illness alone. Respiratory disease was responsible for 60 to 66 percent of the incidence of acute conditions recorded in every age group. In comparison with a total of 764 million days of bed disability caused by all chronic conditions in the United States in 1 year, there

were 593 million from acute respiratory disease alone (see table). The work-loss figures in days for the year were 219 million from respiratory disease and 226 million from circulatory, digestive, and arthritic disease and impairments from injury or other origin combined. The average number of days lost by the usual working population from acute conditions was 5.98 and from all chronic conditions 6.52. These data represent the noninstitutionalized population of the country.

Areas of research

The examples given clearly present to preventive medicine its continued responsibility in those areas of research dealing with the great body of day-by-day infections which repeatedly interrupt healthy, effective life. They probably are also significant factors in the etiology of other disorders whose origins and causes are as yet poorly defined. In addition, they are leading causes of death during the most vigorous periods of life, from the school years through 44 years of age. The point to emphasize, however, is that research must be increased and maintained in the area of the common, annoying disorders of health, in which the preventive promise is high. Human mortality is still 100 percent; thus, while death is inescapable, these disturbances can be prevented.

The maintenance of effective health is nowhere in our scheme of life more actively required than in the military services. In the first place, the population involved is selected with care for its healthy status, and if it is to fulfill its functions in training or in operation, those disturbances most commonly disruptive of daily health must be controlled. As would be expected, they comprise primarily the acute diseases of young adult life and accidents. During 1958, the rate of total "excluded-from-duty" admissions to hospitals and quarters in the U.S. Army was 397 per 1,000 per year. The incidence of acute respiratory infections was 160, representing 46 percent of all admissions for disease and 40 percent of all nonbattle causes. Accidents were the next, with a rate of about 53 per 1,000 per year. But, in addition, the recorded incidences of 24 for the class of infective and parasitic diseases, 16 for gastroenteritis, and 15 for urinary and male genital disturbance, rheumatic fever, and others indicate another large group of infectious diseases. With its farflung geographic dispersions and the increased risks attendant on wartime activities, the military services must also be constantly alert to other common disease problems that are largely avoided at home under conditions of peace and stability. Continued research into etiology, pathogenesis, and prevention of these ordinary diseases is essential, if effective manpower is to be sustained for military operations. It is an old saying that the medical lessons learned in one war are forgotten in the intervals of peace. There has always been a small body of devoted men who have sought to prevent this gap almost by individual effort, just as individual persons or small groups of investigators in civilian agencies have maintained progressive inquiry into specific infectious diseases. But the necessity for coordinated, continuing research which is directed toward prevention of these repetitive and persistent infective urchins has been realistically supported in few quarters.

Number of days of disability per year per group of conditions [1]

Conditions	Number of days of disability per 100 persons			
	Restricted	Bed disability	Work loss [2]	School loss [3]
Acute respiratory	696	352	367	565
Chronic:				
Circulatory	288	99	116	6
Arthritis and rheumatism	152	40	52	----
	Number of days of disability per million persons			
Acute respiratory	1,172	593	219	196
Chronic:				
Circulatory	484	167	69	2
Arthritis and rheumatism	255	67	31	----

[1] Data taken from reports of National Health Survey.
[2] Age 17 years—"usually working" persons.
[3] Age 6–16 years.

U.S. Armed Forces research commissions

An outstanding example of sustained effort toward understanding and preventing common disorders is the Armed Forces Epidemiological Board. It was established in January 1941 through the energetic foresight of the late Steve Simmons, Chief of Preventive Medicine, with the aid of the Surgeon General of the Army, Magee, and the guidance of the President of the Board, Francis Blake, and the Administrator, General Bayne Jones. Expansion of the Army had been accompanied, as always, by an increase in the incidence of respiratory disease. The objective, as stated, was "to appoint and maintain a board for the investigation of the etiology, epidemiology, prevention, and treatment of influenza and other acute epidemic diseases in the Army" and to prepare in time of peace for exaggerated risks of wartime mobilization and operation. The organization was to consist of a central board, an additional group of expert scientists who could meet with the Board, and investigative teams who could go to military stations for study and control of epidemics. It was emphasized that the organization should be flexible and not hampered by unnecessary administrative delays. The investigative units were termed commissions, and their major focus of concentration was respiratory disease, as evidenced by their names: the commissions on acute respiratory disease, on hemolytic streptococcic infections, on influenza, on mumps and measles, on meningococcic infection, on penumonia, on cross infections in hospitals, and on epidemiologic survey. In addition, there were commissions on neurotropic virus diseases and on tropical diseases. Their personnel comprised 111 civilian medical scientists who were already engaged in research on these problems.

I recall the extended discussions at the early meetings about whether or not the commissions should serve only as firefighting units on call for emergencies in military situations. Although these sporadic excursions could be of aid, the need for continuity in the study of disease problems for fundamental research in microbiology and immunology and for supplementation of military facilities by university and other laboratories was clearly recognized. It was concluded that programs of intensive study must be sustained if the potentialities and the functions of the Board were to be effectively met.

The contributions of the Board and its commissions during World War II were such as to elicit the signal statement of one judge, that "No one ever got so much, buck for buck, in returns." By attracting and supporting the activities of groups of collaborating specialists, the commissions of the Board became focal concentrations of expert knowledge and effective investigation of various diseases on a worldwide scale. It is a pertinent point, however, that it was the common infectious diseases of the area which required the concentrated attention of investigators—whether in the continental United States or in oversea locations.

The normal expectation was that the organization would be disbanded at the end of the war, but the demonstrated value of the commission's approach and the assistance thus available to the U.S. armed services was appreciated. It was redesignated the Armed Forces Epidemiological Board, as a Department of Defense agency, to serve the Surgeons General of the Army, Navy, and Air Force for consultation on field problems, for field investigations, and for research in preventive medicine. While certain commissions have been discontinued or combined with others, new commissions have been formed, with an epidemiologic orientation toward special and persistent problems of preventive medicine.

At present there are 180 senior investigators officially attached to the Board and its 12 commissions. In association with each responsible investigator, several more members of his staff usually participate in the research which the laboratory is pursuing.

Accomplishments of commissions

I shall not attempt to recount all the accomplishments of the Board nor to make expansive claims; they are not necessary. What is to be emphasized is that many of these accomplishments would scarcely have been possible had the studies not been made in military populations, with the aid of military scientists and physicians.

In the field of respiratory disease, major contributions in which the commissions have participated include the dynamics of meningococcic herd infections and their chemoprophylaxis; the spread and control of streptococcic infections and their sequelae; the development and application of an effective influenza

vaccine, and the establishment of extended listening posts for detection and study of influenza viruses; the epidemiology of atypical pneumonia as a disease of recruits, basic demonstrations of its viral etiology, and later studies of adenovaccine effectiveness; further field demonstrations of immunization against pneumococcic pneumonia with polysaccharides; the demonstration of new respiratory viruses and their associated clinical reactions; studies toward development of vaccines against measles and mumps; the development of an effective vaccine against Q fever; intensive studies of the ecology and control of infection by *Coccidioides immitis;* and improvement in smallpox vaccine.

Major contributions have been made to the knowledge of and efforts to control infectious and serum hepatitis; to the identification of dengue and Phlebotomus-transmitted viruses and possible vaccines; and to identification of various encephalitic viruses, their serologic relationships, and vaccine development. Investigations into the principles of natural resistance; into the development, evaluation, and improvement of immunizing procedures; into mechanisms of infection; and into the disease process of such time-honored "old soldiers" as dysentery, typhoid, and cholera, which have not yet faded away, continue. In fact, the entire field of diarrheal diseases is under study, with attention to procurement of better information about the physiological basis of susceptibility and the pathogenic capacity of the agent. Studies of cutaneous disorders—sensitizations, acne, itching, poison ivy, fungal infections, i.e., the ordinary ones—are yielding basic etiological and prophylactic information.

Those studying rickettsial disease represent almost the only remaining nucleus of investigators in the United States, their activities continuing in fundamental research as well as in discovery of improved preventive measures or treatment. Their contributions to the knowledge of the milder form of epidemic typhus or Brill's disease, Tsutsugamushi fever (scrub typhus), and Q fever and to corresponding control measures have been outstanding. Much the same is true of the Commission on Parasitic Diseases with respect to malaria and schistosomiasis; they seek to maintain a corps of competent diagnosticians and scientific experts in the military services especially, but their work turns again to basic research for greater biological information. Studies in environmental hygiene have provided data regarding pollution and the disposal of waste in Arctic areas, adaptation to warm climates, food control, and occupational protection. The influence of low-grade radiation on infection and resistance is being investigated.

The Commission on Accidental Trauma, adapting the epidemiologic approach to an important study of the role of the driver, the machine, and the environmental state has served as a focal point for interested groups who were otherwise isolated. They have had a definite influence on the consideration of safety features and on the search for measures to eliminate the hazardous driver. Although the military importance of accidents, both civilian and military, in motor vehicles is fully demonstrated, there are strong currents of resistance to the serious study of the institution of preventive measures. Nevertheless, the board has taken an important national leadership in creating an effective front of research into the problem of vehicular accidents especially.

One other area of known importance that has been sporadically studied is that of the relation of military housing to infectious and mental disturbances. With every increase in strength of military personnel, platitudinous surveys of the housing problem are made. Each change in barracks is made with little or no advice on the aspects of medical or health engineering. It is obviously a zone for extended study, but fatalism and jurisdictional authority interfere.

The research activities have been financed primarily through U.S. Army medical funds, although the other services have contributed to the support of certain specific investigations. Moreover, extended field studies have been conducted in U.S. Air Force and Navy installations. The individual investigators receive their funds on a contract basis after consideration and recommendation by one of the commissions, approval by the central board, and administrative concurrence by the service. At times, if funds are scarce, additional money may be sought from other agencies for a recommended activity, while affiliations and sponsorship by the commission are retained. The commissions do not propose to act as study sections or as granting agencies or to preempt control of an area of research. Their purpose is to gather into a mutual working relation military and civilian scientists with common interests and the dedication to work toward the solution of a given problem. By close adherence to the preventive medicine divisions of the three services, attention to the military needs can be steadily maintained. Disease situations which require investigation, difficulties in appli-

cation of recommended measures, and future projections of the work accomplished can be brought forward for consideration by the appropriate commissions. But the areas of study are not laid down purely as military edicts; the scientific approach is largely devised by the scientific judgment of the experts in that field. In effect, each commission constitutes a research institute with a director, even though housed in laboratories of the affiliated investigators, in military installations, or in other institutions which may be sites of study.

Although the orientation is toward military preventive medicine, the entities under study are also the common causes of disability in the civilian population. Consequently, benefits are mutual and those who are benefited are our sons and daughters. Moreover, there is a great conviction among the participants in this work, as scientists and citizens, that the sustained studies are necessary if these problems of preventive medicine in the U.S. Armed Forces are to be met rather than ignored.

Need for research commissions in preventive medicine

The reason for this expanded discussion of the Armed Forces Epidemiological Board is (1) to emphasize the limited attention now given to coherent study of certain ordinary disorders and (2) simultaneously to point out how an amount of money, small in current terms, but invested in sympathetic support of a sustained united effort, can earn rich dividends. The "commission" plan of investigation recommends itself not merely as a source of expert opinion but as a unit of action research. It should not be an intellectually closed corporation but a collection of balanced judgment and study. It provides the means of encompassing, in a coherent fashion, research on numerous facets of a problem on which information is needed. This information can then be collated, critically evaluated, and projected in an environment of collaborating experts. Dictatorial or financial control of research is avoided by giving the direction of research to the researchers. It retains freedom for individual initiative within a framework of common purpose and objective. In fact, it can often provide support for new adventures which by themselves might wither. Flexibility and versatility permit a change in direction from the concentration on epidemiologic observation to fundamental study of reactions of the host or of the pathogenic agency, as indicated. The commission can provide continuity to research while deriving benefit from new or brief excursions into other areas and can buffer the disturbances of progress occasioned by hucksters and the promoters of expediency. An agency like the Armed Forces Epidemiological Board could well be expanded to deal with other problems and to serve more widely in the national need for research in preventive medicine. It can be a model for advance in difficult and little-understood problems of many kinds. It is my recommendation that, in the planning for future research, serious consideration be given to adoption of the "commission" plan.

Future tasks for preventive medicine

Preventive medicine has long been called the medicine of the future, but what is the future of preventive medicine? I repeat that its future will depend on acceptance, by those who uphold the philosophy of prevention in medicine, of the responsibility for research and the direction it takes and on its willingness to initiate and support vigorous, sustained research in preventive medicine in its literal sense, rather than to leave this to the now-and-then attention of other interests.

A dominant segment of medical research is directed toward the investigation of pathological disturbances which have already become manifest. Clinical attention—and much public health effort—centers on the hope of restoring function or maintaining it at a level that will permit a useful life. Unfortunately, with the exception of certain infectious, toxic, or deficiency diseases, so-called therapeutic procedures do not commonly result in cures, for by the time the manifestations are recognized the defect is well advanced and not ordinarily reversible. This, in general, applies to diabetes, cardiovascular disease, chronic arthritis, cancer, including leukemias, major mental diseases, neurological diseases, pollen sensitizations, and a variety of other disorders. Even with enhanced efforts toward detection of the asymptomatic stages of these disorders, the ultimate result is only slightly influenced.

Progress in our ability to deal with these currently irreversible disorders, or chronic states, calls for increased research, with preventive intent, to study the origins of a disease and the basis of susceptibility to it. It calls for a turn from preautopsy medicine to preclinical medicine. Epidemiologic investigations

should be of prime value in identification of susceptible persons and in disclosure of pathogenic factors which convert the susceptible person, the potential case, into a frank case of disease. Beyond this, there is a need to determine the nature of susceptibility, of the defect or injury which depletes the protective reserve, and of the mechanism of the basic injury, to map out the setting. Knowledge should then lead to devising effective procedures of prevention.

Although there are mild stirrings in this direction, preventive medicine is essentially a neglected field. For its fruitful development, active employment of personnel and scientific methodology from all areas of medical science will be needed. In fact, it is an added facet, a necessary supplement to medical research generally. There has been an increase in the wealth of investigative tools with which to reach back into the beginnings of a disorder. But new perspectives, new ideas, and new modes of measurement will be needed. The epidemiologic, clinical, and laboratory disciplines must be merged into an operating philosophy of preventive research. As increased funds have permitted greater freedom of thought and greater boldness in the pursuit of medical research, there has been much wider extension of interest in the origins of these chronic diseases. It probably is evidence also of increasing maturity in research perspective. Much of this is rising among those engaged in clinical investigation. But my recommendation is that preventive medicine, and especially epidemiology, take a position of forceful leadership in initiation and development in this area. "Grist is ready for the mill, the leaven is active, let's get cooking."

In the September 1959 issue of the American Journal of Public Health there is a series of excellent and frank appraisals of prevention and control of chronic disease. Emphasis is given to the limited facilities now available, despite much activity, to the still prevalent emphasis on detection of the disease, to the greater need to understand the problem confronting us, to the need for etiological studies, to the study of susceptible persons, and to a discussion of the information necessary for primary prevention. The total effect is to point out the need for preventive research.

A further and more fundamental product of this research should be the development of adequate standards of health. In seeking information on susceptibility and reserve and protective mechanisms, new biological measurements will have to be developed before early deviations from health and recognition of abnormalities will be detectable. The normal physiological responses to harmful stresses of various kinds will need to be established. The improvement in development and behavior of germ-free animals, despite exposure to varied hazards, is an example of how health may be studied in man. Since much of our present knowledge of health is primitive, the developments in biological science at both the cellular and the molecular level may provide new dimensions for understanding the systemic and "organismal" state. With advancing knowledge a science of health may actually come into being.

This proposal is not intended merely as a declaration of virtuous ideals. Nor would I propose priority for any of the various entities, for in each of the disorders the need for research is great. The determining factor is the imagination and energy of the investigative group. Nevertheless, certain inferences and relationships suggest that atherosclerosis (especially coronary heart disease), diabetes, and rheumatoid arthritis may be more nearly ripe for picking than certain other diseases of a more diversified nature. But cancer and congenital defects are high on the list because of their probable association with infectious agents. It should be emphasized that the field of infection is wide open for study, for there is no adequate information about who, among a group of susceptible persons, will develop frank disease, inapparent infection, or no infection, when all are uniformly exposed, and that prevention of infectious disease is still in its early stages of development.

Report on one study in preventive medicine

The interest evidenced by the School of Public Health at the University of Michigan in the problem of preventive medicine has taken concrete form in the study of one total community—that of Tecumseh, Mich.—with a population of 8,500. The purpose is to study the health and disease and life and death of members of the population in relation to their biological, physical, and social environment. The work was begun as a program undertaken by the faculty of the School of Public Health as a whole, with financial support from the University of Michigan for studies in "human resources." The community was mapped; the population was identified by individual persons, households, and

genetic kindreds. Interviews and questionnaires obtained information about any of a series of diseases which the individual subjects and families acknowledged to exist among them. About 50 families gave histories of two or more cases of hypertension or of heart disease, and about 15 told of two cases of diabetes.

Our working hypothesis is as follows: A subject with hypertension or coronary heart disease, for example, serves as an index case. Whether related to environmental exposures encountered in the way or course of life or to genetic factors, the members of the household or of the genetic kindred, or both, are more likely to share those influences than other segments of the population. They are more likely to develop the disorder and hence to provide a focus of susceptible persons. Consistent study of the familial associates should then provide information on susceptibility, the early stages of abnormality, and the course of development of the disease. A developing disease may be observed at different stages in the same unit. Moreover, since persons of all ages are included, observations on contributory factors may be made from early childhood on. That the origins of these diseases go well back into early life seems highly probable. At the kindred level, several generations may be kept under observation. Among those presumed susceptible, pilot studies in the development and evaluation of methods for detection of early aberration can be made. Relationships between the occurrence of different clinical entities can be studied in the same population. The continuing study may also be expected to provide some observations on the incidence of disorders and to suggest features for expanded study in larger populations.

At any rate, with support from the National Heart Institute, examination of the total population has begun, with Dr. Fred Epstein in charge. A comprehensive history, obtained from each family, provides special detail relating to cardiovascular disease, diabetes, arthritis, and chronic pulmonary disease. Each family is then examined clinically—a thorough examination being made, with supportive laboratory studies and again with special emphasis on cardiovascular disease. The population is examined in representative aliquots. In this undertaking we have had the warm support and assistance of the staff of the clinical departments, especially the medical staff, but including surgeons and psychiatrists. A special dental examination is being made of one sample of subjects. Surveys of spastic deformities, fertility, and respiratory disease by family distribution are being made. To date, nearly one-third of the population has had its examination, as requested, with an acceptance of 90 to 92 percent. The data are being edited and recorded, and certain preliminary measures of uniformity have been made. Although no analyses have been made as yet, it is quite clear that interesting findings will be obtained. With establishment of the prevalence and selective distribution of various diseases by means of a thorough medical history and examination, the identification of the population will have been completed, and the foundations will have been laid for intensive continued study of special segments that harbor a given disorder or groups of diseases.

Summary

New dimensions and postures are recommended for medical research. The guiding concepts should be (1) that research in preventive medicine in the literal sense be forcefully established, strongly supported, and effectively maintained; (2) that research in infectious diseases not be dissipated by deceiving slogans; (3) that research move toward prevention of the so-called chronic diseases whose scope is increasing; and (4) that preventive medicine will be the medicine of the future only if it accepts its proper responsibility, for the future is very near.

Our views of health, and its values, must, like our educational system, reflect our culture and our way of life. They must be projected as the image of our ideals. Freedom and democracy may seem like hollow triumphs if the hopes of life are submerged in a welter of disease. Security and longer life can be miserable acquisitions, if they mean only the continuation of unhealthy states. Preventive medicine can be our most progressive demonstration to all the world of our belief in human life and happiness. Peace, health, and security are of the same fabric. We should weave more of it.

C. Atomic Energy Commission Research in Biomedical Science

Senator Humphrey. A separate committee publication has been devoted exclusively to the subject: "Radiation Research in the Life Sciences." Information for that publication was compiled at our request by the Atomic Energy Commission.

For the present volume, only a short outline of the commission's broad field of interest will be set forth.

If one were to categorize the commission's biomedical interests for purposes of laymen's understanding and in accordance with a simple listing of disease specialties, it might read as follows.

1. Arthritis and metabolic:
   - Sugars, hormones.
   - Relationship to radiation sickness.
2. Neurological and blindness:
   - Cataracts.
   - Radiation effects on central nervous system.
   - Embryological pathology.
3. Allergy and infectious:
   - Immunological relationships.
   - Immune-body formation.
   - Transplantation of tissues.
4. Geriatrics:
   - Radiation aging.
5. Accidents:
   - Reporting systems for radiation, chemical, traumatic, and fire accidents.
6. Sanitary engineering:
   - Waste management.
7. Miscellaneous:
   - Radiation ecology.
   - Marine sciences.
   - Biomedical instrumentation.
   - Burns and blast.

Research in all of these areas is administered by the Division of Biology and Medicine, except for item 5 which is the joint responsibility of the Division of Biology and Medicine and the Office of Industrial Relations, and item 6 which is the responsibility of the Division of Reactor Development.

As to activities abroad, in the 1959 fiscal year, AEC has estimated it supported 10 radiation research projects in the life sciences in foreign offsite facilities, aggregating $202,000 in cost. By contrast, on an overall basis, in the 1960 fiscal year, AEC supported an estimated 1,060 projects in the biosciences, aggregating $53.2 million in cost—almost exclusively in the United States.

D. National Aeronautics and Space Administration—Biosciences Research

Senator Humphrey. America's growing commitment in exploration of outer space has called to the fore a vast new field of space medicine.

A few of the major research interests of the National Aeronautics and Space Administration are:

1. Space biology: This is a general category for a series of biological programs that deal with specific problems of manned space flight and extraterrestrial life. Included are such programs as physiological and psychological stresses which will deal with the effects upon man of high accelerative and decelerative forces, weightlessness, and long periods of isolation.

2. Radiation: This program will deal with the hazards to the astronaut of extraterrestrial radiation that is known to be present in radiation belts surrounding the Earth and other unknown radiation that may be present in space and on the Moon and planets. In addition, manmade radiation exposure from auxiliary and primary nuclear power sources will be considered.

3. Ecology: The immediate problems under consideration are the effects of extraterrestrial contamination upon the ecology of Mars and other planets where there is a possibility of the existence of life in some form(s).

4. Sanitary engineering: Problems here deal with the handling of human wastes in manned space vehicles.

5. Nutrition: Unique problems in space flight feeding are anticipated in a weightless condition and in providing the pilot with food and water over long periods of time with a minimum of sacrifice of weight.

6. Safety engineering and accident prevention: Problems here are primarily concerned with protecting the public against catastrophies resulting from space flight operations. This includes both chemical and nuclear hazards.

As to oversea interest, for an account of an NASA program for Senior Fellows from abroad, see section 5 in this volume on the National Academy of Sciences-National Research Council.

E. Veterans' Administration

Senator Humphrey. Clinical research across the board is a major concern of the Chief Medical Director of the Veterans' Administration. This research concerns both the diseases and disabilities experienced by the general population, as well as those which may be of particular pertinence within the "population," so to speak, of 22 million ex-servicemen. In the 1960 fiscal year, VA supported 6,569 research projects aggregating $17.3 million.

The Veterans' Administration medical care and medical research programs are almost exclusively domestic in nature.

Medical Activity in Philippines

One international aspect of VA's work is described in the Annual Report of the Administrator of Veterans Affairs for 1959 (pp. 95–96):

The VA regional office operation in the Philippines represents the major portion of all foreign programs administered by the Veterans' Administration. The unique situation of operating a regional office in a foreign country is warranted due to the large number of Filipinos entitled to benefits who served in the U.S. Armed Forces prior to Philippine independence. There is a veteran population of 334,000 in the Philippines.

During the year, both financial and technical assistance were provided for the Philippine Government operation of the 722-bed Veterans Memorial Hospital. A highly qualified VA physician, many years a hospital administrator, is assigned to the Veterans Memorial Hospital as medical coordinator.

Prior to July 1, 1958, hospitalization of U.S. veterans represented a relatively minor operation in Manila. Such hospitalization was limited to war-service connected cases of veterans temporarily sojourning in the Philippines. Effective July 1, 1958, Public Law 85–461 authorized the hospitalization of service-connected veterans without regard to their length of visit or residence in the Philippines. This law further authorized the hospitalization of non-service-connected cases (including Spanish-American War veterans) who met stateside eligibility criteria.

Effective July 1, 1958, a contract was entered into pursuant to Public Law 85–461 to provide reimbursement to Veterans Memorial Hospital on a per diem basis of $10.25 per patient day for fiscal year 1959. Under the contract hospitalization is provided for service-connected Commonwealth Army veterans and service-connected and non-service-connected U.S. veterans. Reimbursements for cost of both Commonwealth Army Veterans hospitalization and U.S. veterans hospitalization are borne by the United States. The rate of reimbursement is on a per diem basis which is renegotiated each fiscal year.

VA has a significant group of studies within the field of parasitology and tropical medicine, particularly in the VA Center in San Juan, P.R.

Inevitably too, VA treats many cases of relatively exotic diseases—rare in this country—incurred overseas by American servicemen during foreign service.

Between the National Institutes of Health and the Veterans' Administration, there is close cooperation in many research programs.

VA hospitals treat the largest group of individuals to which the Federal Government has legal responsibility for medical care. Accordingly, no agency's clinical program will feel more directly the impact of new research discoveries from at home and abroad. (As an example, see page 625 on brain-research and brain-injured veterans.)

In view of all this, I believe that it would be well to have as background for our international review the following account of VA's overall medical operation. This operation is domestic in nature, but the account underlines, in my view, the importance of the United States tapping the world's best scientific judgment. Fulfilling the medical needs of "him who shall have borne the battle" is, of course, one of the Nation's highest obligations:

1. ARTICLE IN JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, OCTOBER 3, 1959, BY GEORGE ARMSTRONG, M.D.

THE MEDICAL PROGRAM OF THE VETERANS' ADMINISTRATION

George E. Armstrong, M.D., New York

In 1950 the medical program of the Veterans' Administration was described in the Journal as a report from the special Medical Advisory Group under the editorship of Dr. Roy E. Kracke.[1] This publication dealt in considerable detail with the history and legal background of the department of medicine and surgery and summarized the events which led to the reorganization of the VA medical program in 1945. The present paper proposes to supplement the report of 1950 and to present some of the more recent developments in the programs under which medical care is now being provided for American veterans.

In presenting this report as a spokesman for the Special Medical Advisory Group, I am pleased to call attention to the tremendous contribution which American medicine has made, and continues to make, to the total VA program. In this cooperative effort there has been an ever-increasing degree of understanding between practicing physicians and VA staffs' general acceptance of mutual obligations toward veteran patients and, finally, a feeling of national pride in our democratic system which provides excellent medical care for the men and women who have earned their eligibility through service to the country.

The basic medical responsibilities of the Veterans' Administration can be described and predicted with considerable accuracy in terms of the present veteran population, the distribution of ages, known trends in the occurrence of disease and disability, and certain other established factors. As of June 30, 1958, the total veteran population of the country was 22,727,000. Although the total number of veterans is expected to decline, the demand for hospitalization and medical service will continue, or even increase, in certain categories for many years. This forecast is based in part on the medical requirement of veterans aged 65 or older. About 265,000 veterans attained the age of 65 in the fiscal year 1958. Of all veterans in civil life June 30, 1958, approximately 1,250,000 were 65 or more years old. In 1960, nearly 1,800,000 and in 1965, about 2,300,000 veterans will be aged 65 or over. These trends have served to focus attention of the Veterans' Administration on the problems and challenges of providing geriatric care.

Attention is particularly directed to the medical requirements of the large group of elderly veterans hospitalized for neoplastic and cardiovascular disease,

for chronic respiratory conditions, and for long-term neurological and psychiatric disorders. Surveys show that the older veteran patient is affected to a greater extent by these and other chronic disabilities or similar conditions requiring longer periods of treatment and convalescence than the younger patient. Veterans hospitalized for long-term illness (hospital stay in excess of 1 year) account for almost half of the total VA hospital capacity. This "freezing" of beds requires the Veterans' Administration to exert especial vigilance regarding factors controlling length of stay and turnover among hospital patients.

Outpatient medical care

Veterans are provided with medical and dental care for service-connected disabilities by VA outpatient clinics and by private physicians and dentists furnishing services on a fee basis. Under these programs, medical care is provided with greater economy to the Government and convenience to the veteran than the costly alternative of hospitalization. More than 2 million outpatients received medical services from VA outpatient staffs or fee basis physicians during the fiscal year 1958. Hometown (fee basis) medical care is used if (1) the demand for service exceeds the capacity of the clinic, (2) the patient requires a specific type of treatment not available in the clinic, or (3) travel to the clinic creates an undue hardship for the patient. During the last fiscal year, 36,300 physicians and 12,500 dentists participated in the fee basis program. Also participating in the hometown program were retail pharmacies which supplemented VA pharmacies by filling 628,000 prescriptions for veterans. The hometown medical program also provides community home nursing care, especially to patients convalescing from long-term illness.

To improve the quality of medical care the Veterans' Administration has adopted the policy of combining, where feasible, activities of outpatient clinics and hospitals in the same locality. Although such arrangements have generally resulted in significant economies, financial advantage has not been a dominant consideration. A total of 19 such consolidations have been effected since 1950.

During recent years, important changes in medical practice have produced a steady increase in the workload and cost of outpatient services. The use of tranquilizer drugs has made possible and desirable the treatment of many persons on an outpatient basis who would have previously required hospitalization. Successful use of antibiotic drugs in the treatment of tuberculosis has likewise shortened the duration of hospitalization and increased the need for outpatient service. To a lesser extent, advances in the management of hypertension and cardiovascular disease have had a similar effect. Medical and research staffs of the Veterans' Administration have participated actively in bringing about these and other developments. There can be no doubt as to the professional, social, and economic benefits ultimately to be derived from such trends. They do, however, necessitate a flexible administrative approach which is willing and able to meet the changing situation with appropriate shifts in organization and facilities.

The hospital program

At the end of fiscal year 1958, there were 172 VA hospitals in operation. Most of these hospitals provided care to patients of all types. On the basis of the medical type of the majority of patients under care, there were 20 tuberculosis hospitals, 40 neuropsychiatric hospitals, and 112 general medical and surgical hospitals.

In response to a request from Mr. Sumner G. Whittier, Administrator of Veterans' Affairs, the President has recently issued a new and important policy in reference to the VA hospital program. Under this new policy the total authorized capacity of the Veterans' Administration hospitals is fixed at 125,000 beds. All future construction to provide beds or hospitals for replacement and modernization, or to compensate for major geographical shifts in veteran population, will be within this overall total. It is further provided that beds or hospitals, within the fixed total, can be shifted from one use to another or from one geographical situation to another in response to advances in medical treatment.

This new policy represents an important milestone in the development of the VA medical program. It provides the necessary flexibility to convert beds from one diagnostic category to another or to make changes consistent with local requirements without threatening the system as a whole. Under this policy the hospital program will be more predictable in many aspects. The improvement in administrative stability is well calculated to maintain or improve the quality

of professional care. Furthermore, the policy will help to clarify the obligation of the Veterans' Administration to provide hospitalization to veterans with non-service-connected disabilities. Under the law, the Veterans' Administration provides hospitalization to veterans with non-service-connected injuries or illness if it is determined that the veteran is unable to pay for such care and if a bed is available. In the past, a great deal of controversy has been due to the lack of clearly authorized limits for the total VA hospital system on which the availability of beds could be defined. Under the new policy the availability of beds can be determined as the difference between the number required by veterans with service-connected conditions and the total capacity of 125,000 beds. First priority always goes to the veteran who seeks hospitalization for a service-connected condition.

As already mentioned, the VA hospital program is profoundly influenced by the demand for long-term hospitalization. The length of stay in the hospital is directly related to the age of the patient population and to the incidence of chronic or irreversible disabilities. It is estimated that the median length of stay of all patients admitted to VA hospitals is about 21.5 days. It is difficult to make any valid comparisons between VA hospitals and private hospitals in this respect, because of the great difference in the type of patient being served. More than one-third of all VA patients are hospitalized for periods in excess of 5 years, and more than one-half of the large group of neuropsychiatric patients remains in the hospital for 5 years or longer.

During the fiscal year 1958, the average daily patient load in all VA hospitals was 111,599. Fifty-one percent of these were classified as psychiatric patients. The remaining patients were distributed as follows: tuberculous, 10 percent; general medical and surgical, 35 percent; and neurological, 4 percent.

An annual sample census provides detailed information on the clinical and eligibility status of patients under VA care on a typical day. The most recent report (Nov. 30, 1957) on 113,000 patients hospitalized under VA auspices showed that about 400, or 0.4 percent, were nonventerans for whose care the Veterans' Administration received reimbursement. Included in this group were military personnel on active duty, Federal Government employees who were injured or disabled in the course of their employment, and persons requiring emergency hospitalization who were admitted as a humanitarian measure. The remaining patients were veterans who may be classified in three eligibility groups as follows: (1) There were 34.7 percent receiving care for service-connected disabilities. These veterans are unconditionally eligible for VA care; (2) there were 8.6 percent with service-connected compensable disabilities who were being treated for non-service-connected disabilities. These veterans are eligible for VA care if a bed is available; (3) there were 56.3 percent receiving care for non-service-connected disabilities. These veterans are eligible for VA care if a bed is available and they sign an affidavit certifying their inability to defray the cost of hospitalization.

During recent years, VA hospitals have been filled to an average occupancy rate of about 92 percent of operating beds. This is believed to be an efficient ratio but is probably about as high as should be attained. Some beds must always be kept open for scheduled admissions, transfers, and emergencies. Veterans with service-connected disabilities are invariably admitted within 24 hours of application. Others may have to be on waiting lists pending the availability of beds. At the close of fiscal year 1958, the number of eligible applicants awaiting VA hospitalization totaled 25,418. More than 60 percent of these were neuropsychiatric cases.

Domiciliary care

Under the domiciliary program the Veterans' Administration provides care to veterans who do not require actual hospitalization but who, affected by permanent or chronic disabilities, are unable to earn a living and are without financial resources for support. There are 17 domiciliary units with a total operating capacity slightly in excess of 17,000 beds. The medical problem among domiciliary members is of increasing concern and interest. Advancing age in the group has increased the incidence and severity of disease and disability. Developments in medical science, particularly in the field of total rehabilitation, have opened great new possibilities and obligations for adding to the comfort and productive life of these persons.

The VA center at Wood, Wis., has made considerable progress in a pilot study of planned living programs for domiciliary members. This program provides scheduled activities for members based on their physical and mental abilities.

Included in each activity plan are periods for treatment, work assignments, and recreation. The department of medicine and surgery recognizes the need for further research and development to provide all domiciliary units with the same quality of comprehensive medical care that is available to aged and chronically debilitated patients in VA hospitals.

Professional service activities

The large number of significant advances that have been introduced into the VA medical program since the report of 1950 have paralleled the general advance in American medicine. The VA professional services are broadly integrated with nongovernmental health services at both national and local community levels. This active exchange is a constant stimulus to professional growth and assures the veteran patient of a quality of medical care equivalent to the best available in the particular locality.

As recently as 1954, applications for admission to tuberculosis hospitals operated by the Veterans' Administration far exceeded the number of available beds. Applied research in the chemotherapy of this disease has now materially reduced the demand for beds, shortened the duration of hospital stay, decreased the relapse rate, and reduced the death-discharge ratio.

The necessary bed adjustments for a declining load of tuberculous patients have been made to fully utilize the VA hospitals most favorably located, staffed, and constructed. A number of beds that were previously used for tuberculous patients have been converted for patients with nontuberculous diseases. The tuberculosis program is gradually being integrated with the internal medicine program, and pulmonary disease services are being established in selected hospitals.

Significant advances have been made in the attack on mental illness. Outstanding consultants in the fields of psychiatry, neurology, clinical psychology, nursing, and social work assist the VA staff in evaluating and developing the program of medical care for psychiatric and neurological patients. All leads relating to the cause and more effective treatment of mental disorders and neurological disease are under investigation. The Veterans' Administration has made significant contributions to the medical world in evaluating the use of tranquilizing drugs in the treatment of mental illness.

The VA member-employee program has received nationwide commendation for its accomplishments. Under this program, long-term mental patients are selected to become salaried hospital employees as a step in the transition to normal work and social experiences they will encounter when discharged to their home communities.

On June 30, 1958, there were 8,049 psychiatric patients away from the hospital on trial visit, the majority of whom were under social work supervision. The number of such patients in special placements has continued to increase. Significant numbers of patients are being handled to good advantage away from hospitals in nursing and foster homes. The day care clinic for psychiatric patients has recently been introduced on a limited pilot project basis and is demonstrating in VA, as it has elsewhere, an important contribution to productive and comfortable life for patients who do not require actual institutional care. VA mental hygiene clinics play an important role in averting hospitalization for many veterans.

Since World War II, the Veterans' Administration has maintained a position of leadership in medical rehabilitation which has been of outstanding importance to its patients and has been followed with interest by the medical profession throughout the world. New and important techniques have been developed with particular application to psychiatric patients, blinded patients, paraplegic and quadriplegic patients, and older long-term patients with chronic disabilities. The newer techniques are aimed at preventing further physical and mental deterioration, helping to maintain or improve mobility, and contributing to happier living. The approach is designed to help meet a growing major health problem that confronts the entire nation as well as the Veterans' Administration.

It would be impractical to attempt a full listing of contributions and advances made by VA professional services during recent years. The foregoing report may serve to illustrate the type of effort that is being made in a large number of medical and paramedical service units throughout the VA system.

Education and training program

In 1946, a program of education and training was instituted to overcome professional deficiencies and to improve the standards of patient care. An association with the Nation's medical schools began at once and through the years has extended to 93 hospitals and 72 medical schools. This program has brought to the medical care of veteran patients not only the experience and teaching ability of the faculties of the medical schools but also the eagerness, vigor, and scientific curiosity of young medical trainees. Simultaneously, the VA hospitals were developing affiliate programs with universities and colleges for trainees in nursing, dietetics, social work, psychology, occupational therapy, and other professions in the field of medical care. One of the most important factors determining the success of the VA medical program is its close integration with American medicine and related professional groups through universities and medical schools. The status and achievement of this relationship has been the subject of a recent publication.[2]

The Veterans' Administration now operates 626 training programs for resident physicians and 25 graduate training programs in dentistry. The total of 2,515 VA medical residents on duty as of April 15, 1958, represented 82 percent of all residency appointments in the Federal service and 11 percent of all residency appointments in the United States. In the fields of nursing, hospital administration, and the paramedical specialties, there are about 5,000 trainees each year. The coexistence of these training programs with a medical residency program produces a hospital and clinic environment beneficial to both. While providing an essential service to veterans, these programs also make a tremendous contribution to the trained medical manpower pool of the Nation, especially in those areas where such manpower is in critically short supply.

The Veterans' Administration is also making a valuable contribution to undergraduate medical and dental education through the sponsorship of clinical clerkships in selected hospitals. For the academic year 1957–58, a total of 6,022 medical students representing 62 medical schools were assigned to VA hospitals.

Approximately half of the VA hospitals are located in, or near, medical centers where they benefit from the daily associations and the general stimulus of an academic atmosphere. The other hospitals, which are peripherally located, require certain special efforts to secure comparable levels of continuing education and professional growth. In addition to the more conventional form of clinical lectures and educational duty details, a program of physician-in-residence has been developed for the benefit of these hospitals. Under this program highly qualified clinical teachers are scheduled for visits of 3 to 5 days at each of the hospitals. These visitors spend their entire time in intimate contact with the VA staff and develop an informal, but intensive, teaching exercise around the actual professional problems of the hospital. The physician-in-residence visit has been highly successful as both a practical and an academic stimulus and in many instances appears to be a more effective method of postgraduate education than the traditional approaches.

The VA clinical investigator program was inaugurated in 1957 to meet the needs for selected physicians whose primary responsibility is medical research. This program has been strongly supported by the medical schools of the Nation. There are 38 clinical investigators on duty during the current year. The 3-year training assignment afforded under this program is designed to produce physicians who have, in addition to their fundamental medical training, the skills and interests necessary for continued advancement in clinical research and teaching.

Research program

Major health problems of the veteran population furnish the stimuli for the VA medical research program. This program not only provides the necessary solutions to the day-to-day problems of medical care but is of benefit to the Nation and its nonveteran citizens as well. In addition, many medical specialists have been attracted by the opportunities for research and have joined the staffs of VA hospitals for this reason. This has brought a high order of medical talent to the patient's bedside.

During the current year, more than 6,000 projects are being pursued in VA research laboratories. A large proportion of these are directed toward problems of aging and the chronic long-term disabilities which are of major concern to all medical service elements.

Aside from the research projects conducted in individual VA hospitals, the department of medicine and surgery has developed a method of cooperative study whereby a number of VA hospitals, often in collaboration with other governmental agencies and nongovernmental groups, bring together their combined facilities and focus the talents of many experienced investigators on a given problem.

One of the more spectacular achievements of group cooperative research was the development of a successful plan for the treatment of tuberculosis by chemotherapy. The plan has revolutionized the management of patients with tuberculosis, has shortened their period of hospitalization, and has materially reduced the morbidity and mortality due to this disease.

Cooperative study programs of similar type are now being conducted in 24 major clinical problems. Among these are cancer chemotherapy, chemotherapy in psychiatry, pulmonary function studies, antihypertensive agents, antibiotic resistance of staphylococci, surgery of coronary heart disease, and so on.

Summary

This brief account of the medical program of the Veterans' Administration supplements the "Kracke report" of 1950 and presents some of the more recent developments in veterans' medical care. Basic responsibilities of the VA medical service are determined in terms of the known veteran population, with special attention to problems of aging and chronic long-term disabilities.

Current trends in medical practice are increasing the need for care in VA outpatient clinics supplemented by fee basis service of private physicians and dentists. The VA hospital program has been stabilized by a new administrative policy fixing the total capacity of the system at 125,000 beds. The domiciliary program is being strengthened by greater medical interest in the health and total rehabilitation problems of the member population.

The large number of improvements in the professional services of the VA program parallel the general advance in American medicine. Education and training programs in cooperation with universities and medical schools have been of vital importance in achieving the present high standards of patient care. The research program has made valuable contributions to patient care, has been an important factor in recruitment of specialized personnel, and has established itself as a highly significant unit among the health service resources of the Nation.

550 First Avenue (16)

References

[1] Kracke, R.: "Medical Care of Veteran," J.A.M.A. 143: 1321–1331 (Aug. 12) 1950.
[2] Nunemaker, J. C.: "Veterans' Administration—Medical School Relationship," J. M. Educ. 34: 77–83 (Feb.) 1959.

F. Department of Agriculture

Senator Humphrey. Some of the most important contributions in the field of biology and in many other fields have been made under the programs of the U.S. Department of Agriculture.

These are not only programs with a long heritage in American history but are programs which have been carried out at the grassroots of America with the cooperation of scientists and technicians in the 50 States of the Union.

It is my personal belief that the findings under USDA programs represent a treasury of information for biological and medical science. I, for one, doubt that this treasury is being capitalized to the fullest possible extent. This in turn is due to several factors which will be referred to in subsequent publications by the subcommittee.

In the 1960 fiscal year, the Department of Agriculture estimates it has supported 912 projects having direct impact on medical science, aggregating $16.1 million in cost.

Department of Agriculture programs outside the United States in the health field have thus far been comparatively small, however.

A new chapter is opening up in use of currencies owned or controlled by the United States abroad. These funds derive from sale of U.S. farm products under what is known as Public Law 480. Such funds can be used for support of scientific research overseas. Some programs of veterinary research are already being supported and a number of oversea projects for human nutrition research are now being considered.

Long before Public Law 480, Department of Agriculture experts were active in programs overseas involving the raising of food productivity, a matter vital to the emerging nations. Similarly, USDA entomological research has involved worldwide efforts.

I may say that a separate committee print to be issued by the subcommittee will be exclusively devoted to one of the most important areas of USDA research; namely, veterinary medical science.

G. National Science Foundation

Important programs for the support of basic research in the life sciences abroad are being carried out by the National Science Foundation. While these programs are small, compared to the Foundation's domestic operations, they are nonetheless significant in terms of international science.

Since the seventh committee print in the subcommittee's series was devoted exclusively to pertinent phases of the Foundation's work, it is not necessary at this point to elaborate upon them. We might, however, note that part 5 of that print related to the Foundation's oversea programs.

USE OF FOREIGN CURRENCY OVERSEAS

We cite now a pertinent provision in the appropriations law for the National Science Foundation, Public Law 86–626, approved July 12, 1960, authorizing use of foreign currency overseas:

> *Provided further*, That not to exceed $1,600,000 of the foregoing appropriation may be used to purchase foreign currencies which accrue under title I of the Agricultural Trade Development and Assistance Act of 1954, as amended (7 U.S.C. 1704), for the purposes authorized by section 104(k) of that Act.

Similar provisions for the National Institutes of Health and the Office of Vocational Rehabilitation were cited earlier. (See p. 347.)

H. International Cooperation Administration

In our U.S. bilateral program of health assistance abroad, certain research projects are sponsored by the International Cooperation Administration.

The range of these projects is broad—field trials on drugs, sanitary engineering, nutrition, rehabilitation, and others.

A separate part of this section is devoted to a comprehensive account of ICA's work. The research phase will be found therein.

I. Office of Civil and Defense Mobilization

The Office of Civil and Defense Mobilization supports certain biomedical work within other Federal agencies—within the Department of Health, Education, and Welfare, medical care studies, and studies

of the blood and blood derivatives; within the Department of Defense, studies on immunization and burns.

The fact that OCDM takes a keen interest in international biomedical research, as such, is underlined in the following letter from its former Director, the Honorable Leo Hoegh:

OFFICE OF CIVIL AND DEFENSE MOBILIZATION,
Washington, D.C., October 14, 1960.

DEAR SENATOR HUMPHREY: A recent invitation from your subcommittee invited our reactions to your Study of International Health and Medical Research since August 1958, and requested (*a*) our judgment on future policy of the U.S. Government and international medical cooperation, and (*b*) our frank appraisal of the work of your subcommittee based on its committee prints and hearings to date. In connection with the foregoing, please be advised of the following:

OCDM is actively interested in all sources of knowledge, both foreign and domestic, that might be useful in maintaining or restoring the health of the American people during and after a civil defense emergency. OCDM supports a Health Services, responsible for all preparedness activities in the health and medical fields, and a Biophysics and Medical Sciences Division, responsible for encouraging and coordinating research germane to the needs of the Health Services and the country at large. Actual implementation of OCDM health responsibilities has been delegated to the Department of Health, Education, and Welfare.

The primary responsibility for coordinating and advancing both research and operational activities for the protection of human life remains, however, an integral part of the functions of OCDM. We are happy, therefore, to go on record as intensely interested in the work of the subcommittee advancing international cooperation in medical research. We are prepared, should it be deemed desirable, to furnish representation and actual participation and to assist generally in any way which our staff capabilities permit.

Specific examples of OCDM (and its predecessor, FCDA) interest in international health efforts would include OCDM participation in the NATO Medical Committee which meets twice yearly and to which OCDM (and FCDA) representatives have been going for the past several years and to which the Director, Health Services, OCDM, is going this month.

OCDM participated in the development and review of the NATO publication on "Emergency War Surgery."

Under an OCDM contract with the National Academy of Sciences to study blood and blood derivatives (contract No. CD–GA–56–60), OCDM in 1956 authorized travel to the U.S.S.R. to investigate certain reported Russian techniques of blood preservation, and in 1956 a small team of U.S. investigators visited the Soviet Union for direct and personal study of the Russian techniques.

OCDM staff has been actively following the work of your subcommittee. The research staff is impressed with the large number and variety of medical research projects in which international cooperation exists. However, what is needed is an agency to monitor, evaluate, abstract, coordinate, and plan for health research on an international basis.

I note with a great deal of interest the enactment of Public Law 86–610 by the 86th Congress (the International Health Research Act of 1960). A study of this law indicates that when its provisions are implemented the needs mentioned above will be substantially fulfilled.

Sincerely,

LEO A. HOEGH, *Director.*

J. NATIONAL ACADEMY OF SCIENCES-NATIONAL RESEARCH COUNCIL

One of the most important private organizations with which the subcommittee is in contact is the National Academy of Sciences-National Research Council. Everyone familiar with the Academy's work is aware of its enormous contributions in a broad gamut of scientific fields.

In terms of this subcommittee's particular interest, the Academy has significantly contributed through its Division of Medical Sciences, its Office of Scientific Personnel, and its Office of Internatonal Rela-

tions. Other publications by this subcommittee describe some of these contributions in somewhat greater detail. It is sufficient to say for the moment that the Academy has worked fruitfully with virtually all of the many Federal Government agencies whose activities have been touched upon in the preceding pages.

There follows the first of several reports which our subcommittee received from the Academy.

In a separate category within this section will be found a comprehensive report on exchange programs for which the Academy is responsible.

1. LETTER FROM S. D. CORNELL, EXECUTIVE OFFICER, NATIONAL ACADEMY OF SCIENCES-NATIONAL RESEARCH COUNCIL

NATIONAL ACADEMY OF SCIENCES-
NATIONAL RESEARCH COUNCIL,
Washington, D.C., October 29, 1958.

DEAR SENATOR HUMPHREY: Your letters of September 10, 1958, to Dr. Detlev W. Bronk, President of the National Academy of Sciences-National Research Council, apprised us of the study of America's international health and medical research programs being undertaken by your Subcommittee on Reorganization and International Organizations under Senate Resolution 347. On Dr. Bronk's behalf I have been gathering together information from our several undertakings that may be of interest to you in connection with the study.

I am glad to send you the attached statement of our activities in the above field, together with three publications that are pertinent thereto. We should be glad, of course, to supply additional details, if you wish them. For that purpose I suggest that your staff be in touch with one or all of the following members of our staff:

Dr. R. Keith Cannan, Chairman, Division of Medical Sciences.
Dr. Wallace W. Atwood, Jr., Director, Office of International Relations.
Dr. M. H. Trytten, Director, Office of Scientific Personnel.

Dr. Bronk is in Europe but will return next week. As you know, he is personally much interested in the field that you are studying, and I am sure that he will wish to give you any assistance that he can.

Yours sincerely,

S. D. CORNELL, *Executive Officer.*

ACTIVITIES OF THE NATIONAL ACADEMY OF SCIENCES-NATIONAL RESEARCH COUNCIL IN THE FIELDS OF INTERNATIONAL MEDICAL RESEARCH AND TRAINING [6]

Participation of the National Academy of Sciences-National Research Council in international programs for the promotion of health and of medical research and training can be summarized under the following headings:

I. Cooperation with international organizations.
II. Exchange of specialists.
III. Special studies.

I. COOPERATION WITH INTERNATIONAL ORGANIZATIONS

The Academy-Research Council adheres on behalf of U.S. science to four international scientific unions that contribute to the promotion of research in the medical sciences. These are:

International Union Against Cancer (UICC).
International Union for Physiological Sciences (IUPS).
International Union of Biochemistry (IUB).
International Union of the Biological Sciences (IUBS).

Adherence to these unions is effected through national committees appointed by the Academy-Research Council. The national committees support the work of the unions by nominating and briefing U.S. representatives for office and

[6] Prepared in October 1958.

for membership in the various executive and scientific groups that serve the unions. They also encourage attendance at the periodic congresses of the unions by securing and allocating funds to support the cost of travel to the congresses. For example, travel grants were made to 108 scientists attending the congress on cancer held in London in July 1958, and it is expected that grants will be made to about 60 scientists who plan to travel to Buenos Aires in August 1959 for the International Congress of Physiological Sciences.

In addition to our support of the international unions and their congresses, we appoint delegates to many other important international gatherings devoted to medical interests.

Recently the World Health Organization undertook to organize an International Committee on Pathology with the object of promoting international agreement on nomenclature and criteria for the characterization of the degenerative diseases, notably cancer and heart disease. The Academy-Research Council encouraged U.S. pathologists to provide leadership in this endeavor, and an International Inter-Society Committee on Pathology has been established. The secretary of this Committee is Dr. Robert Scarff, Pathological Society of Great Britain and Ireland, London, England.

The Council for International Organizations of Medical Sciences (CIOMS) is an international nongovernmental body established in 1949 with the assistance of UNESCO. It receives support from UNESCO, WHO, and its member organizations. Its activities are described in CIOMS Annual Report for 1957 * * *.

To date the Academy-Research Council has had no official relationship with CIOMS. However, CIOMS has indicated its intention to revise its statutes to permit national membership, and when this has been done the Academy-Research Council will probably serve as the national adhering organization for the United States. National members of CIOMS will be represented in the administrative bodies of the organization and will be expected to contribute substantially to its support.

II. EXCHANGE OF SPECIALISTS

The National Academy of Sciences-National Research Council is involved in the exchange of specialists in the medical and health fields through several programs.

The national program of medical fellowships which we conduct encourages U.S. scientists to seek advanced training abroad when this is of demonstrable advantage to their scientific development. Funds for these fellowships are provided by the Rockefeller Foundation, the John and Mary Markle Foundation, and the Donner Foundation. Five to ten medical scientists are enabled to study abroad annually through support from these sources.

The visiting research scientists program, financed by the International Cooperation Administration and administered by the Academy-Research Council, has brought to the United States from abroad a total of 216 research scholars in the last 5 years. Approximately 40 of these have been in the medical and health fields. For the future, 165 applications have been received, of which 31 are in the medical and health fields.

Under a program which we carry out in association with the International Atomic Energy Agency, 50 applications for research and training fellowships have been received, of which 10 are in the medical and health fields. The appointees will spend up to 2 years in fundamental research in American institutions of higher education, or in comparable research laboratories.

The Academy-Research Council selects and nominates candidates for the National Science Foundation fellowship programs, some of whom go abroad. The numbers vary from year to year; this year two young postdoctoral scientists in the regular postdoctoral program and four senior postdoctoral scientists will study abroad in the medical and health sciences at leading European research institutions.

Under the Fulbright and Smith-Mundt programs, which the Academy-Research Council administers, a sizable number of scholars come to the United States for research and teaching. Each year about one-third of the approximately 500 foreign scholars on the professorial level who come to the United States to lecture or conduct research under the Fulbright Program are in the fields of medicine and the biological sciences, most of them related to the health fields.

Some 20 American scholars have accepted Fulbright or Smith-Mundt grants for the year 1958–59 to lecture abroad or conduct research in Latin American countries, the southeast of Asia, the Middle East, and Europe.

III. SPECIAL STUDIES

Under the joint sponsorship of the Public Health Service, the Department of Defense and, possibly, the Rockefeller Foundation, the Academy-Research Council is about to undertake a comprehensive survey of "The Needs and Responsibilities of the United States in Tropical Medicine." * * *

Since 1947 the Academy-Research Council under contract with the Atomic Energy Commission has been responsible, in cooperation with the National Institutes of Health of the Japanese Government, for the organization and direction of a large-scale continuing study of the health of the survivors of the atomic bombs in Hiroshima and Nagasaki. This research venture, carried out by a staff of American and Japanese scientists, is the most ambitious longterm follow-up study of the health of a large population that has ever been attempted.

The results of these studies are published in the scientific literature that has worldwide distribution. They have been a valuable source of information to our own groups studying the biological effects of atomic radiation and to the United Nations committee on the same subject.* * *

K. Smithsonian Institution—Bio-Sciences Information Exchange

Senator Humphrey. In this subcommittee's review, one of the organizations which has had principal attention has been the Bio-Sciences Information Exchange of the Smithsonian Institution.

This exchange serves as a clearinghouse for information on current research projects in the life sciences.

The subcommittee regards the work of the exchange as so significant that it devoted considerable emphasis to it in its August 11, 1960, hearing. The transcript of that hearing has been published as a separate volume.

Reference to clearinghouse phases may be also found in the hearing volume for the International Health Study—part I, pages 125–126 and 243–244.

3. TECHNICAL ASSISTANCE IN HEALTH BY INTERNATIONAL COOPERATION ADMINISTRATION

Senator Humphrey. This section consists of a report compiled by the International Cooperation Administration in collaboration with the subcommittee staff at my request.

COUNTRY-TO-COUNTRY TEAMWORK

The ICA is the agency which administers the U.S. share in the majority of bilateral technical cooperation programs in health abroad.

The principal effort is being made in economically underdeveloped countries. The effort is part of a comprehensive U.S. program to cooperate in strengthening of health, education, agriculture, and other segments of emerging societies.

The latter are quite understandably seeking to achieve within a brief period—5 years, or a decade—progress which our own and similar societies required more than a century and longer to attain.

INTEREST OF OTHER COMMITTEES

As a member of the Senate Committee on Foreign Relations, it has been my privilege to work closely on ICA's activities in both health and nonhealth fields.

Basic review of ICA by Congress is made by four Congressional committees: the Committee on Foreign Relations, as mentioned;

the Committee on Foreign Affairs of the House of Representatives; and the two Appropriations Committees. It is these committees which decide on the substantive foreign policy issues and appropriations involved in ICA programs.

The Committee on Government Operations does not wish to intrude in any way in the prerogatives of these respective committees.

U.S. FOREIGN POLICY GOALS

The Committee on Foreign Relations in particular has given deep attention to America's international health goals through ICA. That committee has pointed out America's deep compassion and its desire to reduce human pain and suffering. The committee has pointed out our enlightened self-interest, as well, for we are soundly helping new nations to become stable and strong members of the world community. Thereby, they are better able to resist the totalitarian aggression which preceded and has marked the cold war—aggression which thrives on conditions of want and privation in disadvantaged nations.

POLICY STATEMENT BY CONGRESS

We may note at this point the following significant statement of policy in the Mutual Security Act of 1959 (Public Law 86–108), p. 10):

INTERNATIONAL COOPERATION IN HEALTH

SEC. 501. (a) The Congress of the United States recognizes that large areas of the world are being ravaged by diseases and other health deficiencies which are causing widespread suffering, debility, and death, and are seriously deterring the efforts of peoples in such areas to develop their resources and productive capacities and to improve their living conditions. The Congress also recognizes that international efforts are needed to assist such peoples in bringing diseases and other health deficiencies under control, in preventing their spread or reappearance, and in eliminating their basic causes. Accordingly, the Congress affirms that it is the policy of the United States to accelerate its efforts to encourage and support international cooperation in programs directed toward the conquest of diseases and other health deficiencies.

QUESTIONS TO BE ANSWERED

Our purpose in presenting this information at this point is to provide useful background to our committee in studying this as one of the many phases of America's international health effort—private and public, bilateral and multilateral.

The facts which are herein presented help answer such questions as: "How did the United States become involved in technical assistance for health? Where does this program now operate? With what resources? At what costs? With what results?"

ICA, it will be seen, now cooperates in health programs and activities with 45 countries. In the 1960 fiscal year, this involved an estimated $57 million in U.S. expenditures.

SUBCOMMITTEE'S RELATED REPORTS

In addition, considerable quantities of local currencies are utilized for bilateral health aid. Such expenditures are to be described in the final report by this subcommittee.

So, too, one phase of that report will elaborate on the important interrelationship between ICA and the U.S. Public Health Service.

FOREIGN OFFICIALS' REACTIONS

What are the reactions of foreign governments and peoples to the ICA effort, including its financial bulwarking of multilateral programs like malaria eradication? This question is answered in the pages which follow. The answer can, however, best be seen in terms of the rising expenditures of foreign nations in not only matching our U.S. outlay for specific projects but in greatly increasing their own overall health programs.

Another index of foreign reactions may be seen in the comments of distinguished foreign leaders. I should like to quote excerpts from several such reactions at this point.

These reactions supplement the views which are conveyed by ministers of health and other foreign dignitaries elsewhere in this volume.

ILLUSTRATIVE REACTIONS OF FOREIGN LEADERS TO ICA HEALTH PROGRAMS

INTERNATIONAL COOPERATION IN POSTGRADUATE MEDICAL EDUCATION WITH REGARD TO INDIA

"* * * As a member from one such nation (India), struggling to avoid being coerced into wasteful violent pursuits and to raise its standards of life, I must voice our great hope and faith in the free world for international cooperation in the matter of postgraduate medical education. I cannot begin with this presentation, therefore, without a sincere complement to the vision of international agencies such as the Rockefeller Foundation, which has sponsored my visit, and the World Health Organization, the (U.S.) Technical Cooperation Mission, and the Colombo plan, which have already contributed so much toward medical research and education in underdeveloped countries. We have gained through this experience a much better and clearer understanding of the problems which face us in postgraduate medical education."

Presented before the Second World Conference on Medical Education, Chicago, August 30 to September 4, 1959, by Uttamchand K. Sheth, F.C.P.S., M.D., Professor of Pharmacology, Seth G.S. Medical College, Parel, Bombay, India.

REMARKS ON INTERAGENCY COOPERATION BY DR. I. C. FANG, REGIONAL DIRECTOR, WESTERN PACIFIC REGION, WORLD HEALTH ORGANIZATION, AT THE OPENING OF WHO-ICA REGIONAL MEETING, MANILA, NOVEMBER 24, 1958

"I should like to take this opportunity to say how much the World Health Organization appreciates the collaboration of the International Cooperation Administration in the health field. In some cases ICA helped WHO in the initial phase of a project; in other instances, ICA is helping to complete the job that was started by a WHO pilot project. We have such examples right here in the Philippines. In 1952, the ICA—then operating as the Foreign Operations Administration—collaborated with the Philippine Government and WHO in starting the schistosomiasis control pilot project in Leyte. The project has been continuing for the past years with the assistance from the United Nations Technical Assistance Board and the World Health Organization.

"The WHO-assisted pilot project for malaria control in the Philippines was started in 1952 on the island of Mindoro. It was expanded to cover the whole country, with ICA funds. Today, as the campaign enters its eradication phase, WHO has joined hands again with the Philippine Government and ICA. A similar story could be told in connection with the malaria eradication program in Taiwan.

"In the Western Pacific and other regions, many instances of effective ICA–WHO collaboration in the field of public health can be quoted. In Vietnam ICA and WHO complement each other in assisting the Government in strengthening health services by assistance in such fields as nursing, hospital administration, environmental sanitation, health education. The same can be said of the work of ICA and WHO in Cambodia, Korea, Taiwan, and Laos.

"I could also cite the joint activities of the two agencies in Indonesia, Thailand, Afghanistan, Ethiopia, India, Iraq, Jordan, Lebanon, Liberia, Libya, Nepal, Pakistan, and in 15 Latin American countries. There is no doubt that, as the history of public health development is being written in many countries in the Eastern Mediterranean, southeast Asia, the Western Pacific and the American region, one feels the impact of the joint work of WHO and ICA.

"As we review these fine examples of technical collaboration and close cooperation in the field of health, I should like to think that they indicate that various agencies engaged in a common task could be welded and their efforts effectively channeled toward the common goal.

"No effort should be spared to formulate definite and concrete means whereby our cooperation can be made more effective and our relationship closer than ever."

STATEMENT ON THE BILATERAL HEALTH PROGRAM BY PRESIDENT NGO DINH DIEM ADDRESSING THE OPENING SESSION OF THE SECOND NATIONAL ASSEMBLY, OCTOBER 5, 1959

In his address the President sketched the achievements of the Republic of Vietnam during the last few years and pointed out that democracy must be adapted to prevailing social and economic realities.

"With regard to bilateral health programs, the equipment of our hospitals has been increased and modernized. The struggle against epidemics, and such diseases as tuberculosis, leprosy, and cancer, has yielded notable results. I would like to stress the antimalaria campaign. The campaign against this disease extends over 7 years, from 1957 to 1963, with the collaboration of the U.S. Operations Missions. A great effort has been made in the training of medical aid personnel."

ADDRESS BY PRIME MINISTER SARIT ON OCCASION OF NINTH ANNIVERSARY OF SIGNING OF UNITED STATES-THAI MUTUAL AID AGREEMENT

"On behalf of the Thai Government and the Thai people, I take the opportunity to express my heartfelt thanks to the American Government and people for their economic and technical assistance. May our cooperation and friendship last forever and may September 19 be regarded as a red-letter day in the history of Thai-American relationship."

COMMENTS OF THE MINISTER OF PUBLIC HEALTH, DR. GABRIEL VELASQUEZ PALAU, DURING THE CONFERENCE ON BILATERAL TECHNICAL COOPERATION IN PUBLIC HEALTH IN COLOMBIA, JANUARY 27 TO FEBRUARY 10, 1956

"It is worthwhile to mention some of the outstanding activities carried out under these programs such as the yaws campaign, and the malaria control campaign operated in some zones of Colombian territory. The malaria campaign, as well as the insect control campaign, not only have great value due to the results obtained, but because they provide excellent experience that can be utilized in other programs, such as the project for the eradication of malaria throughout Colombia.

"It has been my observation throughout the many years that I have known the bilateral technical cooperation program, that the first and most important purpose as stated in the agreement between our Governments, which is 'To promote and strengthen friendship and understanding between the peoples of the Republic of Colombia and the United States of America and to further their general welfare' has been magnificently fulfilled."

STATEMENT BY THEODORE KOLLEK, DIRECTOR-GENERAL, PRIME MINISTER'S OFFICE, ISRAEL

"The U.S. program of economic assistance and technical aid to Israel is a noble adventure in constructive friendship. Its impact on the development of the country during the last 5 years has been profound. There is hardly a branch of Israel's economy which has not enjoyed the benefits of American experts. Their imprint has also been felt in the social welfare and health spheres. Understanding between the peoples of the two nations has been strengthened and enhanced by the spirit of cooperation and the free exchange of knowledge and ideas which have sprung from these joint efforts."

STATEMENT BY R. DJUANDA, DIRECTOR, STATE PLANNING BUREAU, INDONESIA

"The answer to Indonesia's basic economic problem is a substantial increase in industrial and agricultural production, particularly the former. To achieve this, Indonesia must have technically trained personnel and know-how as well as the finances required. In its technical assistance program, the Government of the United States is assisting Indonesia through sending men and women in many fields to America to study (270 went to the United States in 1954–55) and in bringing American technicians to Indonesia to advise and assist Indonesian officials and private entrepreneurs in learning new and more efficient ways of doing things to achieve this goal.

"In industry, agriculture, education, labor, housing, public health, information and mass education media, American experts are helping Indonesians with demonstrations and pilot projects in this country and in education and training abroad.

"As Director of the Planning Bureau which has the primary responsibility for the design of the programs in which U.S. technical assistance participates, I wish to express my personal appreciation, as well as that of my Government, for the contributions that these cooperative efforts, described in the following pages, have made to the progress of our young nation."

SPEECH BY HAILE SELASSIE, EMPEROR OF ETHIOPIA, DELIVERED ON THE OCCASION OF THE 29TH ANNIVERSARY OF THE EMPEROR'S CORONATION AT THE OPENING OF THE NEW PARLIAMENTARY YEAR ON NOVEMBER 3, 1959

"The successful pursuit during the past year of the antimalarial campaign stands as a tribute to the devotion and cooperation of experts from the Ethiopian Government, the World Health Organization, UNICEF, and the U.S. operations mission to Ethiopia."

COMMENDATION BY JOURNAL OF AMERICAN MEDICAL ASSOCIATION

Senator HUMPHREY. What in turn are the reactions of America's own physicians?

The answer will also be found in correspondence published elsewhere within this and subsequent volumes. It would however be appropriate to quote at this point the comment by the publication which is universally recognized as the spokesman of American medicine—the world's leading medical periodical—the Journal of the American Medical Association. The following is the text of an editorial in its October 26, 1957, issue:

MEDICAL FOREIGN AID PROGRAMS

One of the items of Federal medical spending included in the AMA Washington letter last year was that of international health. The total figure was estimated to be around $50 million annually, with two-thirds of these funds

allocated to the International Cooperation Administration. It is this semi-autonomous unit within the U.S. Department of State that administers the majority of our foreign medical programs. While $30 million is a great deal of money, health programs use less than 2 percent of all foreign aid funds, which include both military and economic aid. The recent foreign aid discussions in Congress provide the opportunity for a nonpartisan review of that portion of our mutual security program concerned with health.

Just 15 years ago, the United States and the country of Ecuador agreed on attempting a joint health program, emphasizing environmental sanitation. This was the beginning of technical cooperation in health, or the medical phase of point 4, as it is commonly known. Since that time, international health programs have grown from the control of communicable disease to the construction and equipping of health facilities; and, of probably the greatest importance, the training and education of local personnel in a country to be able to carry on newly developed health programs by themselves.

The majority of ICA health projects are cooperative public health programs, designed to assist countries, at their request, to improve their health and living conditions. The relation of improved public health to economic advancement is coming to be better understood by leaders of every nation. Through the point 4 program, American physicians, nurses, health educators, and other paramedical personnel assist participating countries to determine their health needs and then suggest specific approaches, based on practical experience, to achieve solutions of existing health problems. In many cases, our health workers relive experiences that were once as difficult to overcome in the United States as they are now in some other country, where such problems are being attacked for the first time.

In addition to contributing to economic progress, by promoting the prevention of mass diseases, international health activities are claimed to contribute to the achievement of the foreign policy objectives of the United States. Dr. Dwight H. Murray, past president of the AMA, speaking at the First International Film Exhibition in New York last June, stressed the universal language of medicine, not only as a means of exchanging scientific knowledge and promoting medical progress but, more so, as an easily understood basis to explain the free and democratic way of life. There is probably no better way for the United States to demonstrate a friendly interest in other people and their problems than to promote community and self-help in eliminating sickness.

Among the 275 world health projects sponsored by the United States last year, there are many examples of accomplishments which, while directly benefiting the countries involved, indirectly act as barriers to diseases that could endanger the people in our own country. In Ethiopia, the establishment of a public health college, training approximately 70 health officers a year, has resulted in the development of several rural health centers in villages, centers which eventually will control many of the infectious diseases that, at present, are only hopefully detected through quarantine services. Cooperative services in Latin American countries, such as Mexico and Brazil, not only assist the people who live there but at the same time provide a healthier environment for Americans traveling through such areas, whether for business or pleasure.

A recent example of international health in action resulted in the development of a new influenza vaccine before a dangerous pandemic situation occurred. Influenza information centers spread throughout the world were able to report on the Asian influenza, determine that no present vaccine was effective for the particular strain, and provide the actual causative virus to prepare an effective vaccine only months after the disease became of potentially dangerous proportions.

The ultimate goal of a bilateral health program is to help a country become self-sustaining in health matters as soon as possible. In addition, it is no longer practical to rely chiefly on quarantine measures to safeguard the health of the people of the United States. The best way to attack a disease is at its source, and in many instances this is one of the main missions of medical foreign aid.

COOPERATION BY PRIVATE SOURCES

To this editorial might be added comments by America's voluntary health agencies, oversea aid agencies (religious and nonsectarian),

medical schools, and other private groups which have cooperated with ICA.

Reports on such voluntary cooperation on the part of nongovernmental organizations have been received in large and welcome quantity from the American Council of Voluntary Agencies for Foreign Service and from its member organizations.

OPINIONS HEREIN ARE NOT SUBCOMMITTEE JUDGMENT

Certain additional opinions are expressed within the pages which follow. They are the views of ICA officials. These opinions parallel, by and large, my personal opinion. They are not necessarily the views of the subcommittee; it has not expressed formal judgment as yet.

APPRECIATION TO PAST AND PRESENT OFFICIALS

Over a period of many months, the ICA helpfully developed this text and a series of charts to illustrate the most important points which we had asked to be covered. I would not want these introductory comments to be concluded without expressing personal appreciation to Eugene P. Campbell, M.D., Director, Office of Public Health, and Frederick Brady, M.D., Deputy Director, who worked closely with our project director. Dr. Campbell had served for many years as head of U.S. technical assistance programs for health in Brazil with great credit to our Government, to the program, and to good neighbor relations.

THE CHALLENGE IN EMERGING SOCIETIES

I will conclude these introductory comments by noting this fact about the world in which we live, particularly that portion of the world which has just emerged or is now emerging to nationhood.

The ferment of freedom and of rising expectations is abroad in the world today. Since World War II, 21 new nations and over 700 million people (a quarter of the world's population) have emerged from colonial status, and are struggling valiantly to retain or develop representative and democratic forms of government. These people value human liberty and national freedom. They desire and need technical skills, new institutions, and development capital invested in health and many other fields.

Technical cooperation in health has become an essential part of U.S. foreign policy. Figure 1 lists the independent nations in Africa and Asia created since World War II, and indicates those in which bilateral health programs are or have been in operation. The last column indicates the per capita gross national product which can be compared with approximately $2,500 [9] for United States in the same year. Figure 2 indicates one way in which bilateral programs, by improving health, can help to break the cycle of disease, ignorance, poverty, and discontent in the economically underdeveloped countries.

[9] Mutual security program summary, March 1959.

FIGURE 1

INDEPENDENT AFRICAN AND ASIAN NATIONS CREATED SINCE WORLD WAR II SHOWING THOSE WHICH HAVE OR HAVE HAD BILATERAL HEALTH PROGRAMS 1/

Country	Area Sq. Miles	Population in Millions	Annual Growth (percent)	Per Sq. Mile	Per Capita GNP (1957)
*Burma	262,000	20.3	1.0	80	$ 56
*Cambodia	67,000	4.7	2.0	70	92
*Ceylon	25,000	9.4	2.6	376	131
Ghana	92,000	4.8	1.6	52	169
Guinea	95,000	2.6	3.0	27	n.a.
*India	1,270,000	405.0	2.0	319	68
*Indonesia	576,000	86.9	2.1	150	65
*Israel	8,000	2.0	4.5	250	882
*Jordan	37,000	1.6	3.0	43	102
*Korea (South)	37,000	22.6	2.1	610	145
*Laos	91,000	2.0	1.5	20	50
*Lebanon	4,000	1.5	2.3	375	419
*Libya	680,000	1.2	1.5	2	98
Malaya	51,000	6.5	3.2	130	n.a.
Morocco	151,000	8.8	1.6	58	180
*Pakistan	365,000	85.8	1.5	235	65
*Philippines	118,000	24.0	3.0	210	215
*Sudan	968,000	11.1	3.2	11	74
*Syria	72,000	4.2	3.0	58	164
Tunisia	48,000	3.8	2.0	79	119
*Viet-Nam (South)	66,000	12.6	2.0	190	153

*Countries which have or have had U.S. bilateral health programs.

1/ from: *Mutual Security Program FY 1960* — ICA. March 1959.

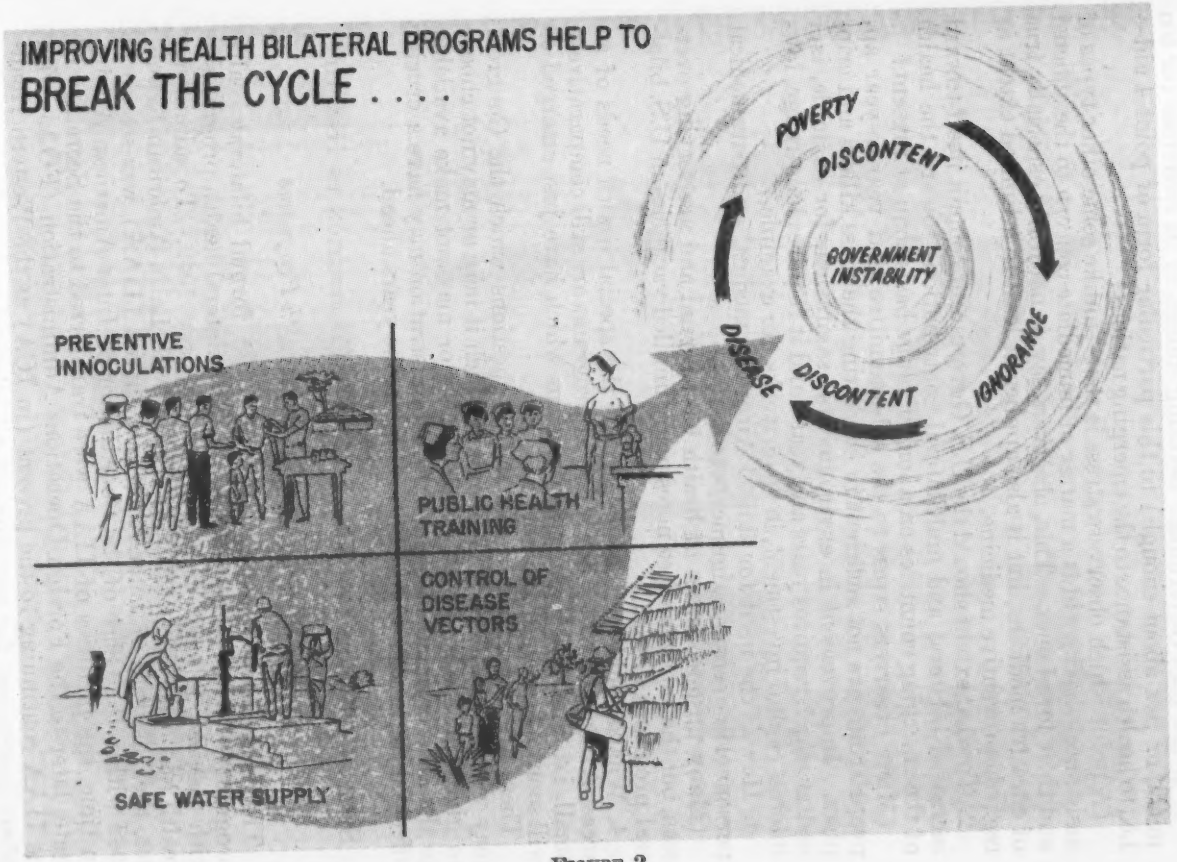
IMPROVING HEALTH BILATERAL PROGRAMS HELP TO
BREAK THE CYCLE . . . .
POVERTY
DISCONTENT
GOVERNMENT INSTABILITY
IGNORANCE
DISCONTENT
DISEASE
PREVENTIVE INNOCULATIONS
PUBLIC HEALTH TRAINING
CONTROL OF DISEASE VECTORS
SAFE WATER SUPPLY

FIGURE 2

POLICY QUESTIONS FACING CONGRESS

As the reader reviews the pages which follow, certain questions may, I believe, logically arise:

1. Is the U.S. Government devoting enough of its resources (or too much, or just about enough) to this particular form of point 4 aid—i.e., to health assistance to the emerging nations?

(A point which observers stress is that—unlike some other types of assistance—health aid is a matter of immediate concern to the afflicted and their loved ones. This, observers say, is naturally especially true of curative medicine, but it also applies at least to a limited extent as regards preventive medicine.

2. To what extent should the U.S. Government commit itself toward increased bilateral and multilateral contributions toward the health of the emerging countries on a longer range basis than at present?

(Many observers stress to the subcommittee that year-to-year appropriations are not sufficient in combating the mass killers and cripplers. Improvement in environmental sanitation, for example, is a matter which requires years and years, and it requires long-range, low-interest capital investment, in waterworks, for example.)

3. How is the need for skilled American medical and paramedical personnel in oversea assignments to be met?

(Many unsung heroes of health have served and are serving overseas, but the subcommittee notes many unfilled vacancies in U.S. bilateral programs abroad.)

4. What should be done as regards the special health needs of an area—Africa—in which our bilateral programs are still comparatively small, i.e., among the many new nations which have just emerged or will soon emerge to sovereignty?

These are but a few of the policy questions which the Congress may wish to consider. The mandate which it may or may not choose to give, and the resources which it may or may not make available to the International Cooperation Administration may have a crucial effect on the health of foreign peoples in the years ahead.

SECTION I. ORIGINS OF U.S. BILATERAL COOPERATION IN HEALTH

A. Background of Bilateral Health Programs

The U.S. Government initiated the first formal bilateral health program—the forerunner of present-day bilateral health programs—with the Republic of Ecuador in February 1942. To administer health and other cooperative programs with Latin American Republics, the Institute of Inter-American Affairs (IIAA) was set up in 1942 within the Office of the Coordinator of Inter-American Affairs. In time, the facilities of IIAA were transferred to the Secretary of State, later to the Foreign Operations Administration (FOA), with the IIAA continuing to the present (in ICA) as the Western Hemisphere instrument for carrying out all bilateral technical cooperation programs in Latin America, including health. The chronology of the U.S. bilateral health programs from 1942 to 1959 is shown in figure 3.

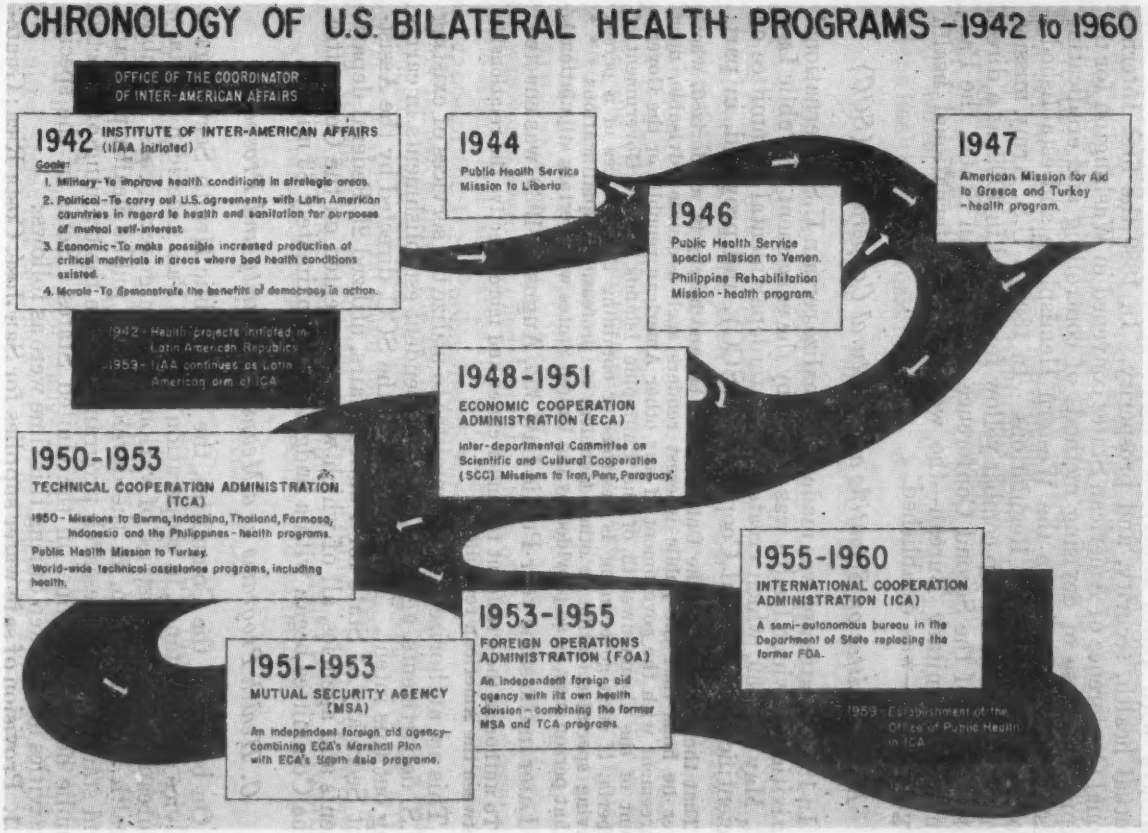
CHRONOLOGY OF U.S. BILATERAL HEALTH PROGRAMS - 1942 to 1960
OFFICE OF THE COORDINATOR OF INTER-AMERICAN AFFAIRS
1942 INSTITUTE OF INTER-AMERICAN AFFAIRS (IIAA initiated)
Goals:
1. Military - To improve health conditions in strategic areas.
2. Political - To carry out U.S. agreements with Latin American countries in regard to health and sanitation for purposes of mutual self-interest.
3. Economic - To make possible increased production of critical materials in areas where bad health conditions existed.
4. Morale - To demonstrate the benefits of democracy in action.
1942 - Health projects initiated in Latin American Republics
1953 - IIAA continues as Latin American arm of ICA
1944
Public Health Service Mission to Liberia
1946
Public Health Service special mission to Yemen.
Philippine Rehabilitation Mission - health program.
1947
American Mission for Aid to Greece and Turkey - health program.
1948-1951
ECONOMIC COOPERATION ADMINISTRATION (ECA)
Inter-departmental Committee on Scientific and Cultural Cooperation (SCC) Missions to Iran, Peru, Paraguay.
1950-1953
TECHNICAL COOPERATION ADMINISTRATION (TCA)
1950 - Missions to Burma, Indochina, Thailand, Formosa, Indonesia and the Philippines - health programs.
Public Health Mission to Turkey.
World-wide technical assistance programs, including health.
1951-1953
MUTUAL SECURITY AGENCY (MSA)
An independent foreign aid agency - combining ECA's Marshall Plan with ECA's South Asia programs.
1953-1955
FOREIGN OPERATIONS ADMINISTRATION (FOA)
An independent foreign aid agency with its own health division - combining the former MSA and TCA programs.
1955-1960
INTERNATIONAL COOPERATION ADMINISTRATION (ICA)
A semi-autonomous bureau in the Department of State replacing the former FOA.
1959 - Establishment of the Office of Public Health in ICA

FIGURE 3

Prior to 1942, U.S. participation in international health consisted principally of informal cooperative efforts of the U.S. Public Health Service to help foreign governments, at their request, to overcome specific health crises which had arisen in their countries, and of conferences with Latin American neighbors on the means to achieve mutual health, security, and prosperity. In 1889 the first International Conference of American States convened in Washington for the express purpose of devising methods of controlling and eradicating pestilential epidemics in the Western Hemisphere and established a Committee on Sanitary Regulations. In 1898, a U.S. Army mission was sent to Cuba to help combat yellow fever, and in 1902, as a direct consequence of the Second Conference of American States, the Pan-American Sanitary Bureau—the world's first international health organization—was established.

B. Committee on Scientific and Cultural Cooperation (SCC)

In 1939, an attempt was made to formalize certain U.S. international activities, of which health was a part, by the enactment of Public Law 63, May 3, 1939, which created the Interdepartmental Committee on Scientific and Cultural Cooperation (SCC), and provided, in part:

> That the President of the United States be, and hereby is, authorized, whenever he finds that the public interest renders such a course advisable, upon agreement with the government of any other American republic or the Government of the Commonwealth of the Philippine Islands, or the Government of Liberia, if such government is desirous of obtaining the services of a person having special scientific or other technical or professional qualifications * * * (that person may be so provided by the United States with certain stipulations).

Later in the same year Public Law 355, August 9, 1939, was enacted:

> To authorize the President to render closer and more effective the relationship between the American republics.

This act authorized this Committee to utilize the services of existing U.S. departments, agencies, and independent establishments in carrying out this intent. The program of the SCC, directed by the Assistant Secretary of State for Public Affairs, utilized 25 Federal departments and agencies, all of which were represented on the Committee. The Committee began with a budget of approximately $3 million.

C. Health Programs as a Means of Security and Prosperity

On behalf of the Committee, the U.S. Public Health Service gave advice and assistance, in cooperation with the Pan-American Sanitary Bureau and the ministries of various foreign governments, in public health administration, in the developing of public health programs and standards, and research programs, and in the training of selected public health personnel in the United States. Some of the specific activities undertaken during this time were as follows:

1. Provision of safe water supplies for San José, Costa Rica; Guatemala City, Guatemala; Lima, Peru; and Guayaquil, Ecuador.
2. Advice and recommendations regarding the milk supplies of San Salvador, El Salvador; and Caracas, Venezuela.
3. Antiplague services for various countries.
4. Antimalaria work in Bolivia, Dominican Republic, Ecuador, Peru, and Venezuela.

5. Cooperative project in the control of onchocerciasis (an infection caused by microscopic worms transmitted by the small, humpback fly—*Simulium*) with Guatemala and Mexico.

Under the increasing pressures of the Second World War, 21 ministers of foreign affairs from Latin American Republics gathered in Rio de Janeiro in January 1942 and formulated agreements establishing bilateral health programs as a means of tying together more closely the security and prosperity of the nations of the Western Hemisphere. Under these agreements, Latin American Republics resolved to improve health conditions within their own borders with U.S. technical assistance, and at the same time to assure that war materials vital to the Allies (such as rubber, quartz, mica, and balsa wood) would become increasingly available as the general economy and the health of the workers improved.[10]

D. The Institute of Inter-American Affairs (IIAA)

As a consequence of these agreements, the United States in 1942 established within the office of the Coordinator of Inter-American Affairs a Government corporation to coordinate and administer the new bilateral Latin American health and other technical cooperation programs. The organization had two major facets, a coordinating Washington office known as the Institute of Inter-American Affairs, and a cooperative unit operated in the host country by the United States and the host government, usually called a servicio[11] which assisted in the development of local health projects. (The operational detail of the servicio-type program (cooperative service) is given in sec. III of this report at p. 449.) Most of the U.S. personnel, during the war years, were assigned from the Office of the Surgeon General of the Army, and later, after the war, were recruited directly with the assistance of the U.S. Public Health Service.

This period marked the beginning of a recognition of the vital relationship between health and the effective productivity of any nation. It also set the stage for a worldwide program, which, unfolding throughout the postwar years, is helping to create conditions of economic progress, political stability, democratic social development, and dramatically improved health and sanitation.

E. Basic Objectives Defined

Essentially, the basic objectives applied at the inception of the IIAA bilateral health programs in 1942 (see fig. 3) have remained unchanged. They have been so flexible as to be applied in war and in peace; they stress cooperation in terms of helping, at their request, friendly nations with their problems, and in training them in areas vital to their long- and short-range health programs. In so doing, the United States has become identified as a partner working directly

[10] A selection of these resolutions is given in "IIAA, The Future Program" of the Institute of Inter-American Affairs (Washington, D.C., January 1949).

[11] Servicio—the generic name of the administrative device through which the Institute (IIAA) works with the other American Republics in the execution of technical cooperation or basic economic development programs. The Spanish or Portuguese word "servicio" means service; it is also the synonym for government bureau in the United States. A cooperative servicio is a bureau or department of a ministry of a Latin American government, such as the Ministry of Agriculture, Public Health, or Education.

with—not merely in or for—emerging countries, and helping them to help themselves. It is interesting to note, also, that although the Latin American contractual agreements effected by IIAA were war-inspired, they were so executed as to make them long-range planning agreements, and they have remained effective far beyond the urgent needs of the early midcentury. It was felt at that time—and further experience has confirmed this fact—that bilateral health programs, in particular, should be planned on a continuing basis.

F. Share-Cost Concept

From 1942 to 1951 under IIAA, a program of cooperative public health operations evolved between the United States and 18 Latin American countries. By June 1951, after 9 years of operations, 1,510 health projects had been undertaken, at an estimated cost of $99,632,-950, of which 37 percent was contributed by the United States and the balance in host country currencies by the host countries. As originally planned, projects which grew into full operation with a sufficient number of adequately trained nationals to staff them, were gradually transferred to the appropriate parent Ministry, and American personnel were withdrawn from operational activities, to serve in an advisory capacity only. This is clearly shown by the fact that in February 1943 the estimated ratio of American to host country technical personnel was 1 to 25, and by June 1952 it had decreased to 1 to 60. In addition, the average matching contributions by the participating Latin American nations, if U.S. salaries and equipment are not included, was approximately "$8 (equivalent in host countries currencies) to $1 from the United States. If all IIAA administrative expenses are included, the ratio is better than $3 to $1 from the United States." [12]

G. Example Set by Latin American Programs

Although the activities of the IIAA have been limited to Latin America, the impact of this first successful "experiment" in technical cooperation in health, agriculture, and education have been such that cooperative economic development through technical assistance programs is now accepted as an essential part of the foreign policy of the United States.

H. Program to Liberia

Once the precedent of the systematic operation of bilateral health programs was established, other requests followed. In 1944, the President of Liberia requested the assistance of the U.S. Public Health Service in developing health services and medical care facilities. In the course of this program, health services and facilities were developed for the capital city of Monrovia. Malaria control practices were initiated throughout the country: a nationwide epidemic of smallpox was halted; and schools for nurses and nurses aids were established. An interesting sidelight is that, from this modest beginning, the annual health budget of Liberia within a 15-year period had increased tenfold.

[12] "10 Years of Point IV in Action in Latin America," IIAA, January 1952.

I. Program to Philippine Islands

At the close of World War II, the U.S. Public Health Service undertook a survey of health conditions in the war-torn Philippine Islands. The service found a great increase in the incidence of malaria. tuberculosis, and venereal diseases; widespread evidence of malnutrition; the disposal into the general population of some 5,000 persons suffering from Hansen's disease (leprosy) who had formerly been isolated in sanitoriums; deterioration and destruction of general sanitary facilities—protected water supplies, sewer lines, and garbage disposal facilities; complete destruction of public health and medical care facilities, maritime quarantine stations, and laboratories and the equipment therein; and the concurrent exposure of the population to importation of such dread epidemic diseases as plague, cholera, and smallpox from nearby Oriental ports. Moved to action by the plight of these people, Congress in 1946 passed the Philippine Rehabilitation Act, which authorized the spending of $5 million by the U.S. Public Health Service to alleviate this situation. The public health rehabilitation program for the Philippines, which included the provision of safe water supplies, mass smallpox inoculations, development of maternal and child health programs, establishment of public health training centers, and the extension of public health education, was completed in June 1950, and contributed much toward the recovery of the Philippines from the ravages of the war.

J. Program to Greece and Turkey

In 1947 American aid missions were sent to Greece and to Turkey, at the requests of those governments, and, in accordance with the provisions of the act of May 22, 1947, authorizing the furnishing of assistance to Greece and Turkey. The Economic Cooperation Administration utilized the facilities of the U.S. Public Health Service in providing technical assistance in the health phase of the overall aid program. Actual operations were undertaken by the Greek Government, with Greek Government funds meeting all internal expenses. Among the accomplishments of the health program were the construction of 5 tuberculosis sanitoriums, 3 nursing schools, 6 hospitals, and 2 health centers; the improvement of water supplies in 375 communities; the establishment of sanitary engineering and nursing divisions within the Greek National Health Service, and the general strengthening of the total service. The efforts of this health mission undoubtedly played a major part in the economic, social, and political stabilization of postwar Greece. The mission to Turkey was considerably smaller, functioning principally in the early stages of a malaria control program. In June 1948, the missions to Greece and Turkey became a part of the newly created Economic Cooperation Administration.

K. The Economic Cooperation Administration (ECA)

Following World War II, a ravaged Europe presented a challenge that was to be resolved by the Foreign Assistance Act, known as the Economic Cooperation Act of 1948 (Public Law 472):

An act to promote world peace and the general welfare, national interest, and foreign policy of the United States through economic, financial, and other

measures necessary to the maintenance of conditions abroad in which free institutions may survive and consistent with the maintenance of the strength and stability of the United States.

Title I of this act established the "Marshall plan," under which was administered one of the most significant demonstrations of international cooperation in peacetime history. Contrary to the public opinion of that time, the Marshall plan was not a giveaway program of direct relief, but rather a shared program, with European countries bearing 75 percent of the total cost, and the United States 25 percent. The ECA maintained a European headquarters in Paris, a central headquarters in Washington, and missions in each cooperating country. These in turn worked hand in hand with comparable entities established by each of the countries.

During the decade since then, the United States has worked through international conferences of many kinds to reach solutions of new problems created by our larger responsibility.

Title III of this act authorized aid to China. The scope of activities was expanded in 1949 to include aid to southeast Asia based upon this authorization. Health programs were emphasized in Formosa, Indonesia, Burma, Thailand, Indochina, and the Philippines. In 1950, the Far Eastern Economic Assistance Act authorized aid to Korea. Medical technicians, first aid supplies, mobile health units, hospital equipment, penicillin, and other drugs were furnished by the United States in an effort to help these individual countries strengthen their own health organizations.

L. The Technical Cooperation Administration (TCA) (1950–53)

The function of the Technical Cooperation Administration was authorized by the President within the Department of State in 1950 after the enactment of the Foreign Economic Assistance Act of 1950 (Public Law 535). Title IV of this act is known as the Act for International Development:

(403a) It is declared to be the policy of the United States to aid the efforts of the peoples of economically underdeveloped areas to develop their resources and improve their working and living conditions by encouraging the exchange of technical knowledge and skills and the flow of investment capital to countries which provide conditions under which such technical assistance and capital can effectively and constructively contribute to raising standards of living, creating new sources of wealth, increasing productivity and expanding purchasing power.

This was in response to President Truman's proposal for a "bold new program" of cooperation with all underdeveloped areas. Thus, TCA's point 4 program, in conjunction with ECA's existing Marshall plan, became an important adjunct of American foreign policy, campaigning against poverty, disease, ignorance, and political instability.

Although TCA operated at this time concurrently with ECA, there was very little overlapping of activities. TCM established new missions in southern Asia and the Near East which complemented ECA's programs in Europe and the Far East. In addition, in Latin America, IIAA was brought into the State Department as part of the TCA organization, although it retained its corporate structure and continued to administer technical programs in that area.

M. The Mutual Security Agency (MSA) (1951–53)

Recognizing the complexities involved in the operation of worldwide economic cooperation programs by various independent Government agencies, and to secure coordination of the national effort, Congress in 1951 passed the Mutual Security Act of 1951 (Public Law 165):

> An act to maintain the security and promote the foreign policy and provide for the general welfare of the United States by furnishing assistance to friendly nations in the interest of international peace and security.

This act established a Mutual Security Agency, with a Director assigned to the Executive Office of the President, with authority to coordinate the three foreign aid programs. The responsibility for carrying out the Marshall plan and related economic aid programs in Europe and Asia was left with the ECA, whose name, however, was changed in the act to the Mutual Security Agency. Similarly, the responsibility for administering the Act for International Development was left with TCA in the Department of State.

N. The Foreign Operations Administration (FOA) (1953–55)

On June 1, 1953, President Eisenhower, recognizing that our mutual security program had developed into an unwieldy amalgamation of plans and programs for foreign aid, transmitted to Congress his Reorganization Plan No. 7, in which he recommended the establishment, at least temporarily, of a single organization to combine all existing agencies, until such time as Congress could develop a better plan of operation. On August 1, 1953, therefore, the Foreign Operations Administration was established, taking over the functions of the Office of the Director for Mutual Security (which included TCA), the Mutual Security Agency, and IIAA. Subsequently, the vested powers were transferred to the Department of State after June 30, 1955. During these 2 years, technical cooperation was expanded, emphasis on health programs was increased, and administrative and operational controls were centralized.

O. The International Cooperation Administration (ICA) (1955–present)

Finally, ICA was established in 1955 within the Department of State by the Secretary of State. The programs of the MSA, the IIAA, and the TCA were all combined in the International Cooperation Administration, a semiautonomous bureau in the Department of State, replacing the temporary FOA organization. ICA maintained its own separate health unit—the Public Health Division—in the Office of Public Services within the Office of the Deputy Director for Technical Services. On July 1, 1959, the Public Health Division was raised to a status comparable with other major programs, and became the Office of Public Health.[13]

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[13] See App. A—Functional Statement, Office of Public Health, International Cooperation Administration.

Section II—Summary of ICA Health Programs

A. Scope of Programs

The International Cooperation Administration cooperates in health programs and activities with 45 countries, as shown in figure 5. Health's share in the total ICA bilateral technical cooperation budget for fiscal year 1960 is illustrated in figure 4. These programs have all been instituted at the request of the host countries involved.[14] Expenditures are heavily on the side of the host countries, as indicated by the comparison of United States to host country contributions in Latin America from 1943 to 1955. (See fig. 4a.) An historical perspective of ICA health programs and activities abroad from 1942 to 1960 is given in figure 6. As of November 1959, 366 U.S. health technicians were working in these countries (see fig. 8), and some 100 additional health personnel were under recruitment. The sources and categories of personnel used in oversea health programs are shown in figure 7.

Under programs of ICA and predecessor agencies, several thousand citizens of other countries have been brought to the United States for advanced study in universities, medical centers, and public health offices of this country. From 1955 to 1959, 1,734 technicians from around the world have received health training in the United States (see fig. 26), and many of them are gradually becoming important and influential persons in their own countries.

Altogether, these health programs represent a tremendous effort in stimulating self-help through cooperation, training, encouragement, and interest in these basic problems around the world.

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[14] The operational considerations involved in the establishment of health programs in other countries is discussed in detail in Sec. III B, p. 448.

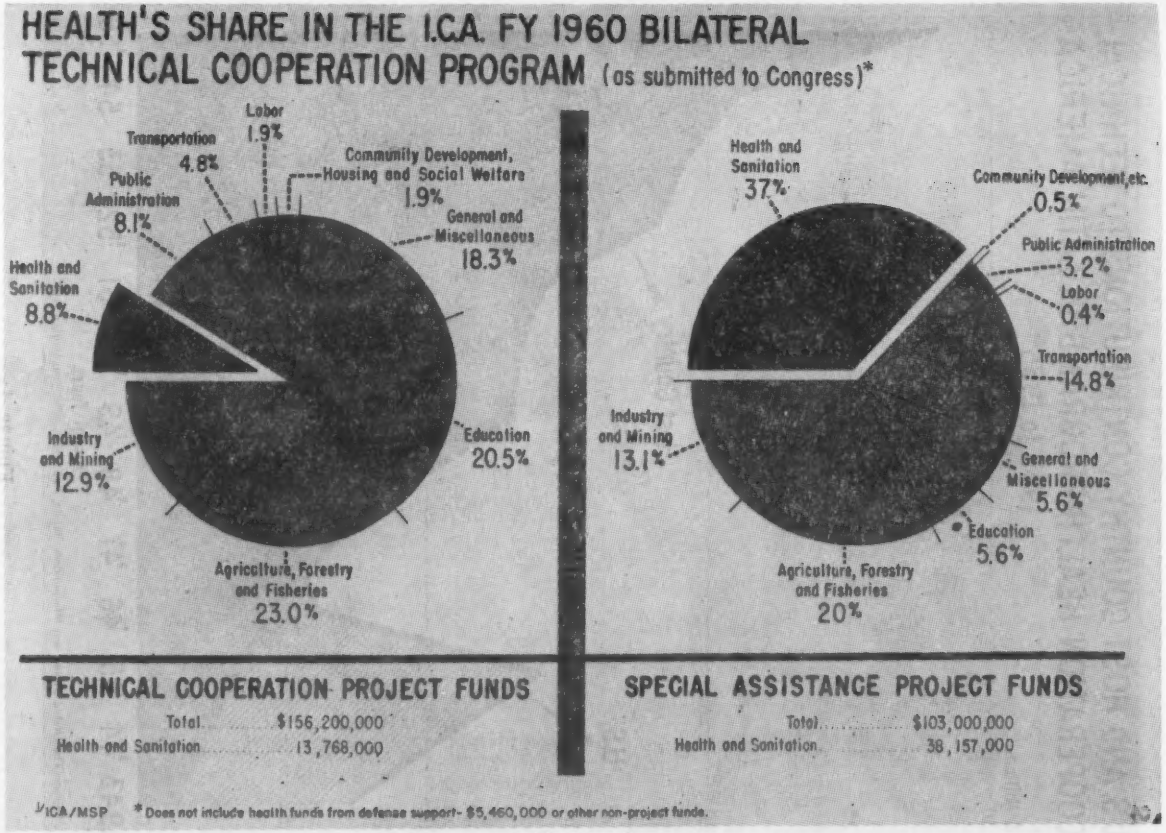
HEALTH'S SHARE IN THE I.C.A. FY 1960 BILATERAL TECHNICAL COOPERATION PROGRAM (as submitted to Congress)*
Labor 1.9%
Transportation 4.8%
Community Development, Housing and Social Welfare 1.9%
Public Administration 8.1%
General and Miscellaneous 18.3%
Health and Sanitation 8.8%
Industry and Mining 12.9%
Education 20.5%
Agriculture, Forestry and Fisheries 23.0%
TECHNICAL COOPERATION PROJECT FUNDS
Total $156,200,000
Health and Sanitation 13,768,000
Health and Sanitation 37%
Community Development, etc. 0.5%
Public Administration 3.2%
Labor 0.4%
Transportation 14.8%
Industry and Mining 13.1%
General and Miscellaneous 5.6%
Education 5.6%
Agriculture, Forestry and Fisheries 20%
SPECIAL ASSISTANCE PROJECT FUNDS
Total $103,000,000
Health and Sanitation 38,157,000
ICA/MSP
* Does not include health funds from defense support- $5,460,000 or other non-project funds.

FIGURE 4

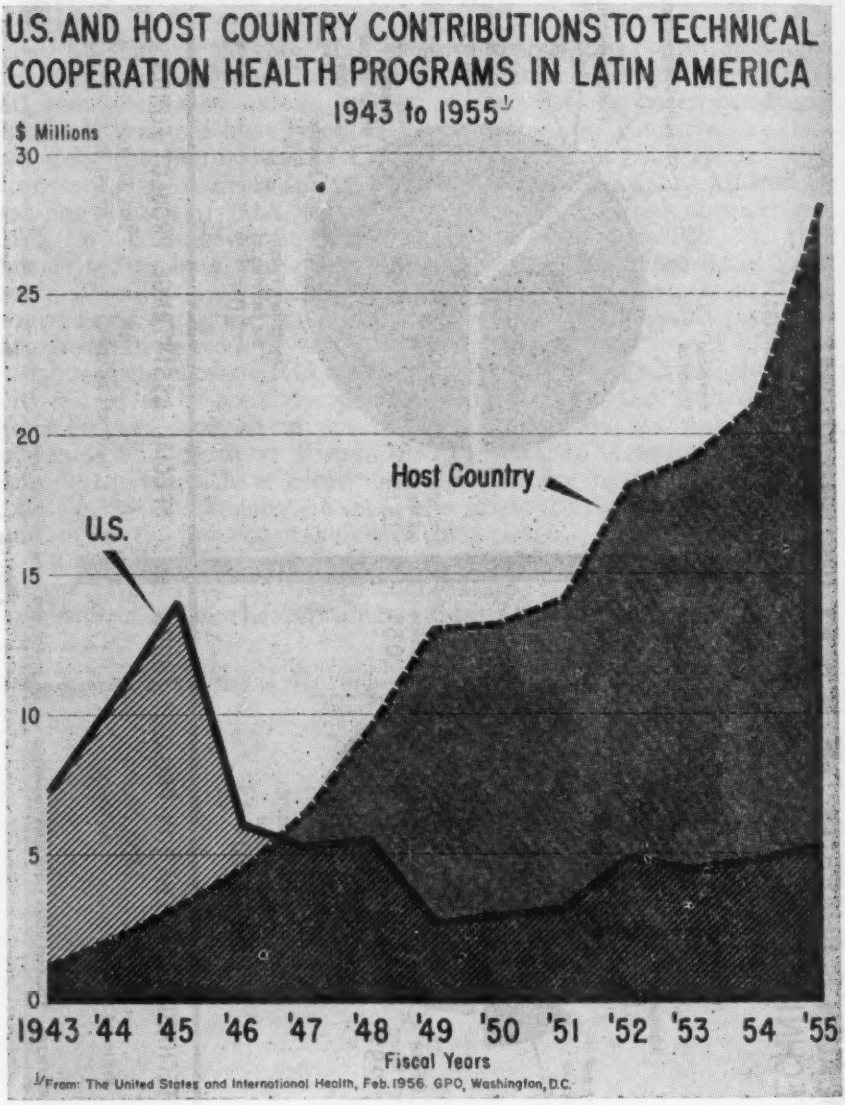
U.S. AND HOST COUNTRY CONTRIBUTIONS TO TECHNICAL COOPERATION HEALTH PROGRAMS IN LATIN AMERICA
1943 to 1955 1/
$ Millions
30
25
20
15
10
5
0
Host Country
U.S.
1943 '44 '45 '46 '47 '48 '49 '50 '51 '52 '53 54 '55
Fiscal Years
1/From: The United States and International Health, Feb. 1956. GPO, Washington, D.C.

FIGURE 4A

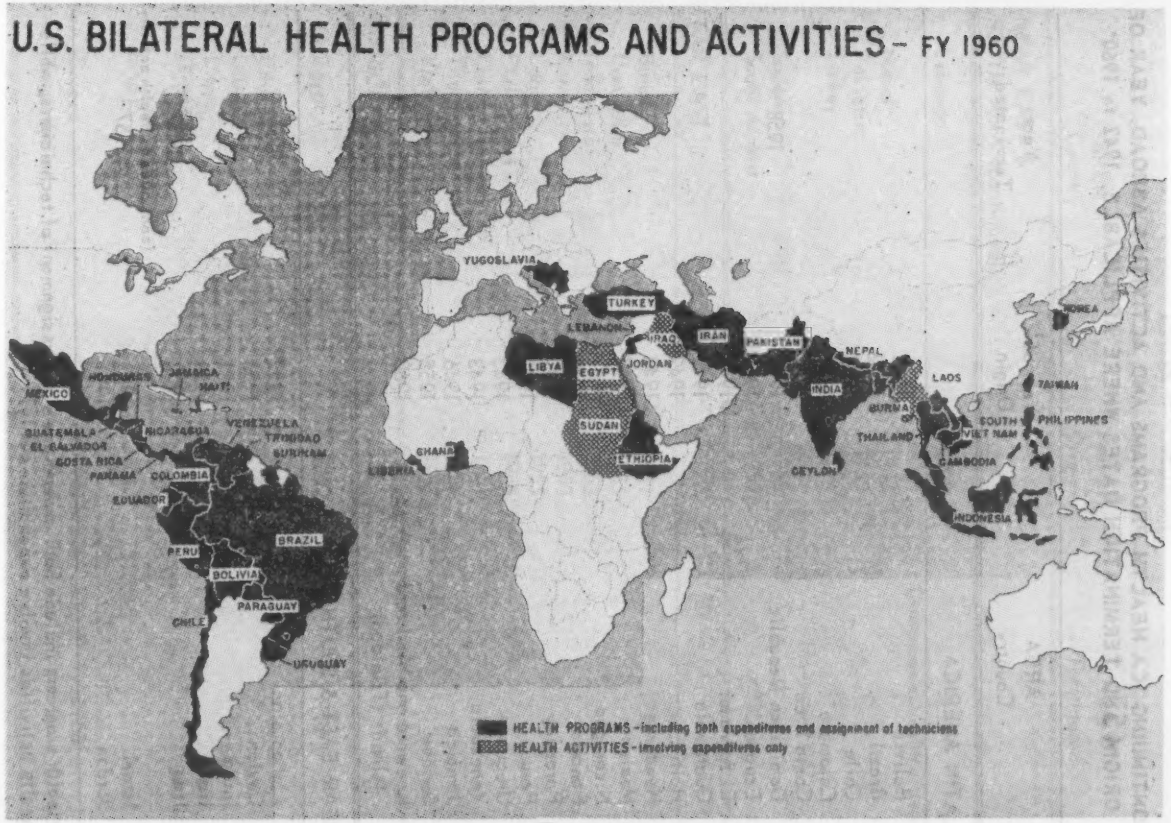
U.S. BILATERAL HEALTH PROGRAMS AND ACTIVITIES - FY 1960
YUGOSLAVIA
TURKEY
LEBANON
IRAQ
IRAN
PAKISTAN
NEPAL
LIBYA
EGYPT
JORDAN
INDIA
LAOS
KOREA
TAIWAN
BURMA
SOUTH VIET NAM
PHILIPPINES
THAILAND
CAMBODIA
SUDAN
ETHIOPIA
CEYLON
INDONESIA
GHANA
LIBERIA
MEXICO
HONDURAS
JAMAICA
HAITI
GUATEMALA
EL SALVADOR
COSTA RICA
PANAMA
NICARAGUA
VENEZUELA
TRINIDAD
SURINAM
COLOMBIA
ECUADOR
PERU
BRAZIL
BOLIVIA
PARAGUAY
CHILE
URUGUAY
HEALTH PROGRAMS - including both expenditures and assignment of technicians
HEALTH ACTIVITIES - involving expenditures only

FIGURE 5

FIGURE 6

CONTINUING ICA HEALTH PROGRAMS AND ACTIVITIES ABROAD, YEAR OF ORIGIN AND TERMINATION DATES WHERE APPLICABLE, 1942 to 1960*

AREA Country	Year of 1/ Origin	Year Terminated
LATIN AMERICA		
Bolivia	1942	
Brazil	1942	
Chile	1943	
Colombia	1943	
Costa Rica	1942	
Dominican Republic	1943	1958
Ecuador	1942	
El Salvador	1942	
Guatemala	1942	
Haiti	1942	
Honduras	1942	
Mexico	1943	
Nicaragua	1942	
Panama	1942	
Paraguay	1942	
Peru	1942	
Uruguay	1943	
Venezuela	1943	
Jamaica	1946	
Surinam	1955	
Leeward and Windward Islands (Trinidad)	1960	
NEAR EAST & SOUTH ASIA		
Afghanistan	1952	1959
Ceylon	1956	
India	1951	
Iran	1951	
Iraq	1952	1959 (continues as health activity)
Israel	1952	1957
Jordan	1951	

*Health programs include both expenditures and assignment of technicians, while health activities involve expenditures only.

1/Refers to date health agreement was signed between U.S. Government and Foreign Government.

FIGURE 6—Continued

AREA Country	Year of Origin	Year Terminated
NEAR EAST & SOUTH ASIA (continued)		
Lebanon	1951	1958 (continues as health activity)
Nepal	1952	
Pakistan	1953	
Turkey	1951	1953 (Reopened 1957)
Sudan	1958	
Saudi Arabia	1952	1954
FAR EAST		
Burma	1951	1953
Cambodia	1955	
Indonesia	1953	
Korea	1953	
Laos	1955	
Philippines	1946	
China (Taiwan)	1951	
Thailand	1951	
Vietnam	1950	
AFRICA		
Egypt	1952	1957 (continues as health activity)
Ethiopia	1952	
Liberia	1944	
Libya	1952	
Ghana	1960	
EUROPE		
Greece	1947	1953
Yugoslavia	1957	

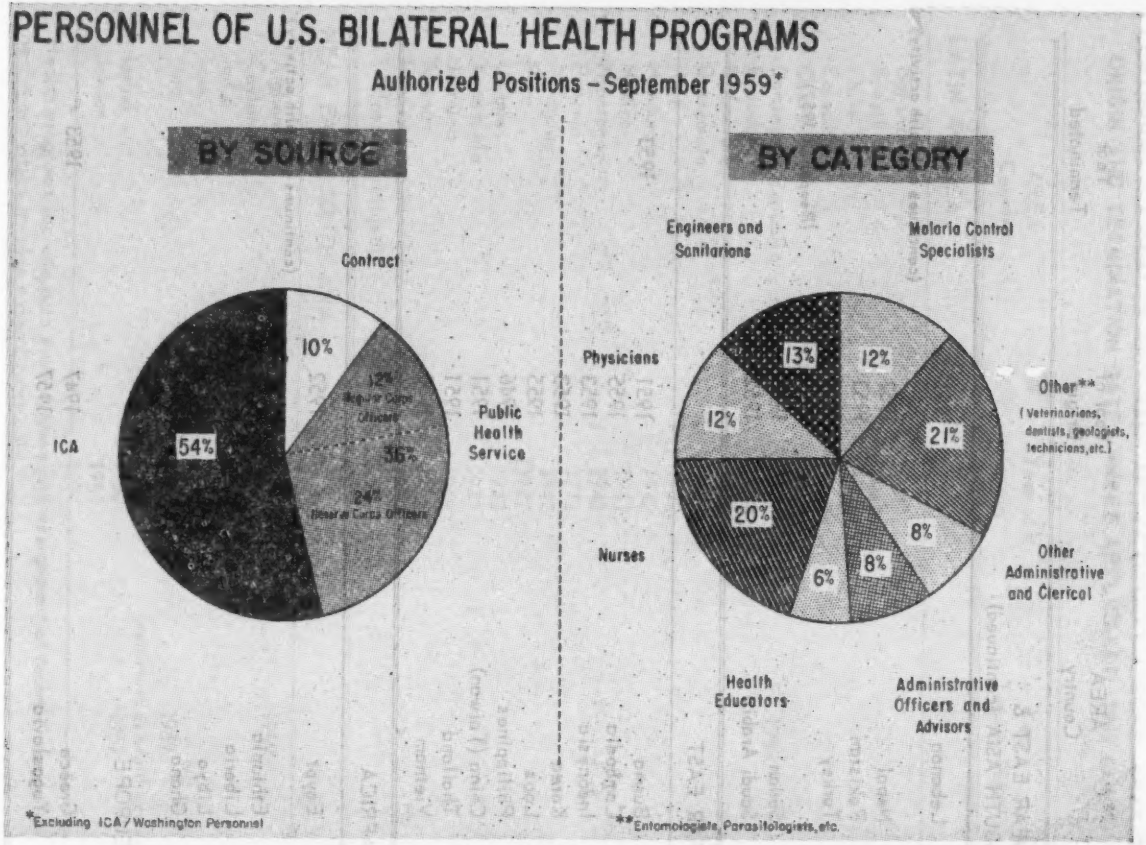
PERSONNEL OF U.S. BILATERAL HEALTH PROGRAMS
Authorized Positions – September 1959*
BY SOURCE
Contract
10%
12%
35%
24%
Public Health Service
ICA
54%
BY CATEGORY
Engineers and Sanitarians
Malaria Control Specialists
Physicians
13%
12%
12%
Other**
(Veterinarians, dentists, geologists, technicians, etc.)
21%
20%
8%
8%
6%
Nurses
Other Administrative and Clerical
Health Educators
Administrative Officers and Advisors
*Excluding ICA / Washington Personnel
**Entomologists, Parasitologists, etc.

FIGURE 7

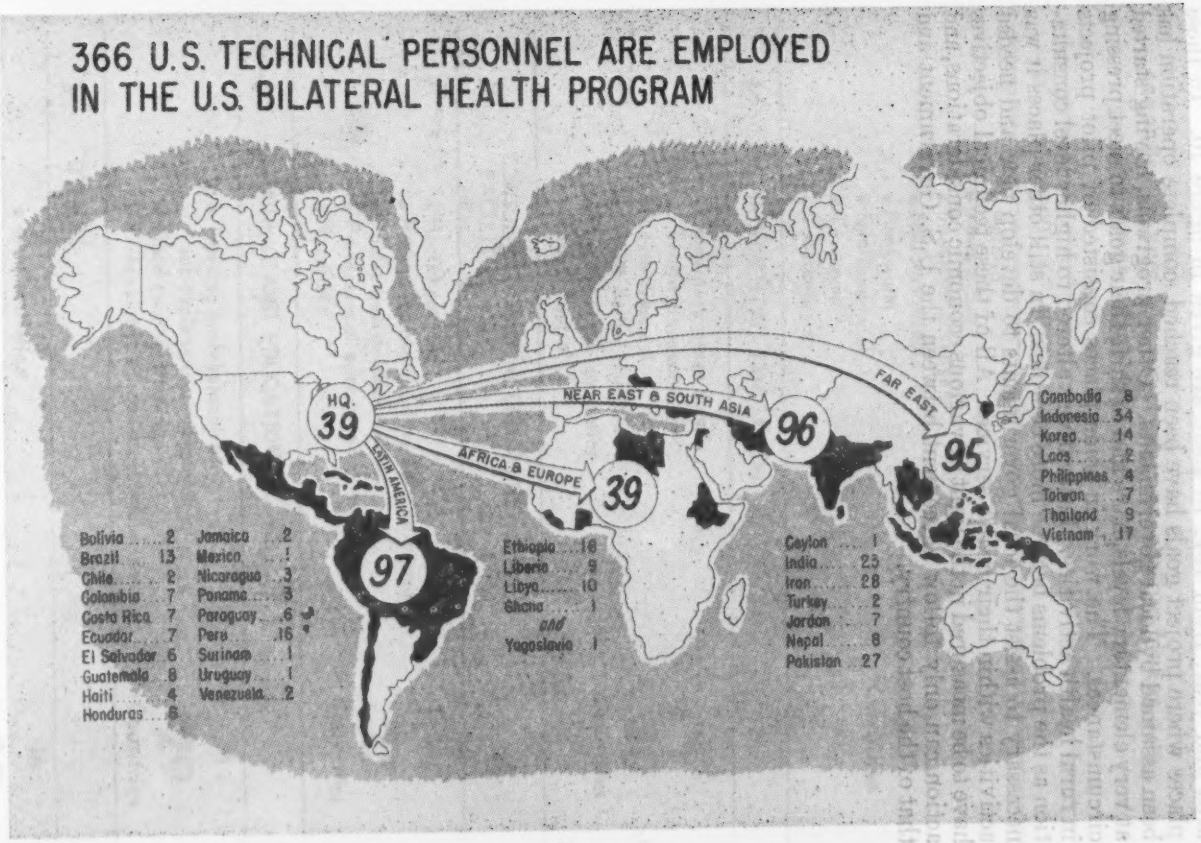
366 U.S. TECHNICAL PERSONNEL ARE EMPLOYED IN THE U.S. BILATERAL HEALTH PROGRAM
HQ. 39
LATIN AMERICA
NEAR EAST & SOUTH ASIA
AFRICA & EUROPE
FAR EAST
96
95
97
39
Bolivia 2
Brazil 13
Chile 2
Colombia 7
Costa Rica 7
Ecuador 7
El Salvador 6
Guatemala 8
Haiti 4
Honduras 6
Jamaica 2
Mexico 1
Nicaragua 3
Panama 3
Paraguay 6
Peru 16
Surinam 1
Uruguay 1
Venezuela 2
Ethiopia 18
Liberia 9
Libya 10
Ghana 1
and
Yugoslavia 1
Ceylon 1
India 23
Iran 28
Turkey 2
Jordan 7
Nepal 8
Pakistan 27
Cambodia 8
Indonesia 34
Korea 14
Laos 2
Philippines 4
Taiwan 7
Thailand 9
Vietnam 17

FIGURE 8

A number of bilateral programs have been in existence 18 years or more. The number of countries with bilateral health programs, by area and year, from 1942 to 1960, are given in figure 10. In those places where project goals have been reached, complete operation has been assumed by local governments. Other programs, having started at very elementary levels, have had to shift their goals to meet pressing circumstances. The work in some places consisted of pilot projects in rural health activities. Later it was altered to higher level consultation as the problems became more complex. In still other places it was necessary to assist the local governments to develop new and needed activities within their health services. All of these technical objectives have to be measured in the light of various economic considerations, and action can only follow agreement between the U.S. Government and that of the host country.

FIGURE 9

REPRESENTATIVE U.S. BILATERAL HEALTH PROGRAMS AND ACTIVITIES OPERATING IN 45 COUNTRIES IN 1960

✓	**CONTROL OF SPECIFIC DISEASES**	
	• Malaria • Yaws • Intestinal diseases • Schistosomiasis • Hookworm • Smallpox • Trachoma • Tuberculosis	in **25** Countries
✓	**ENVIRONMENTAL SANITATION**	
	• Community water supply • Excreta disposal • Waste disposal • Public baths, laundries • Food and milk sanitation • Rodent control	in **30** Countries
✓	**CONSULTATION CONCERNING HEALTH FACILITIES**	
	• Health centers • Provincial and local health administration • Public health laboratories • Professional educational institutions • Hospitals	in **25** Countries
✓	**TRAINING AND EDUCATION**	
	• Training professional and sub-professional personnel • Third country training • Professional educational development	in **29** Countries
✓	**OTHERS**	
	• Vital statistics • Industrial health • Research • Professional conferences	in **30** Countries

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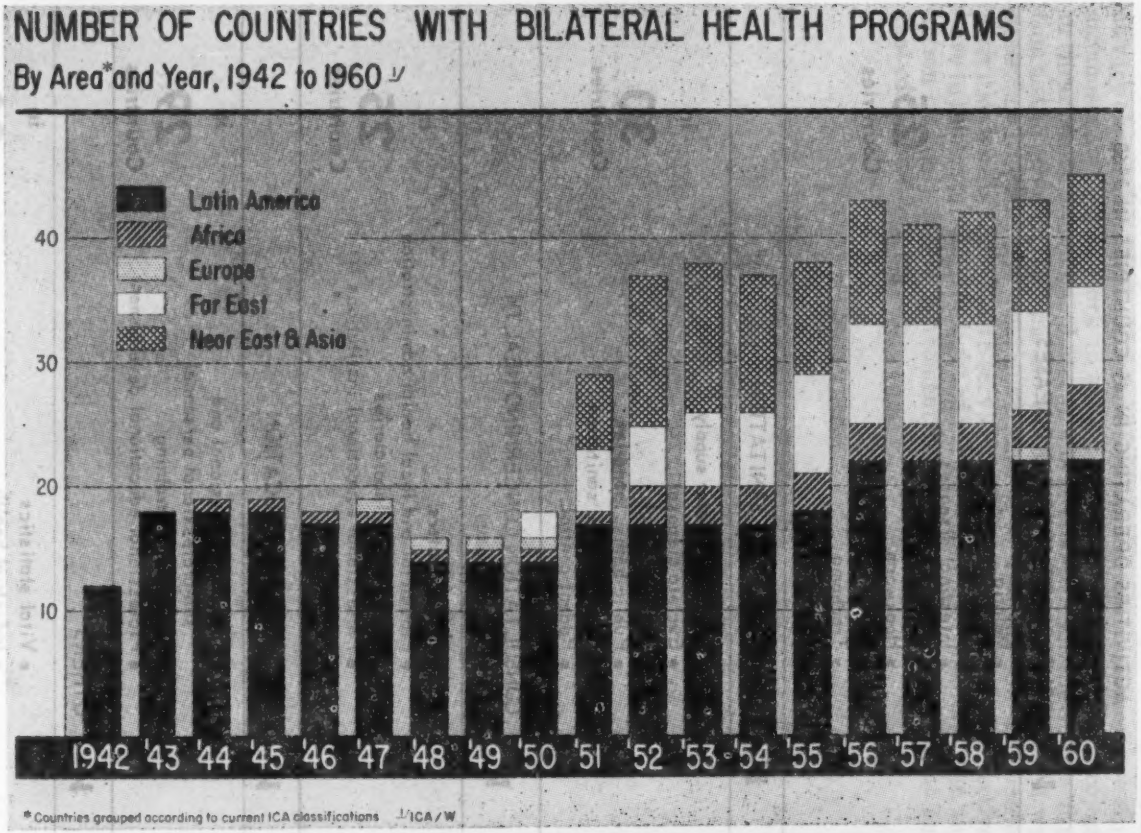
NUMBER OF COUNTRIES WITH BILATERAL HEALTH PROGRAMS
By Area* and Year, 1942 to 1960 1/
Latin America
Africa
Europe
Far East
Near East & Asia
40
30
20
10
1942 '43 '44 '45 '46 '47 '48 '49 '50 '51 '52 '53 '54 '55 '56 '57 '58 '59 '60
* Countries grouped according to current ICA classifications 1/ICA/W

FIGURE 10

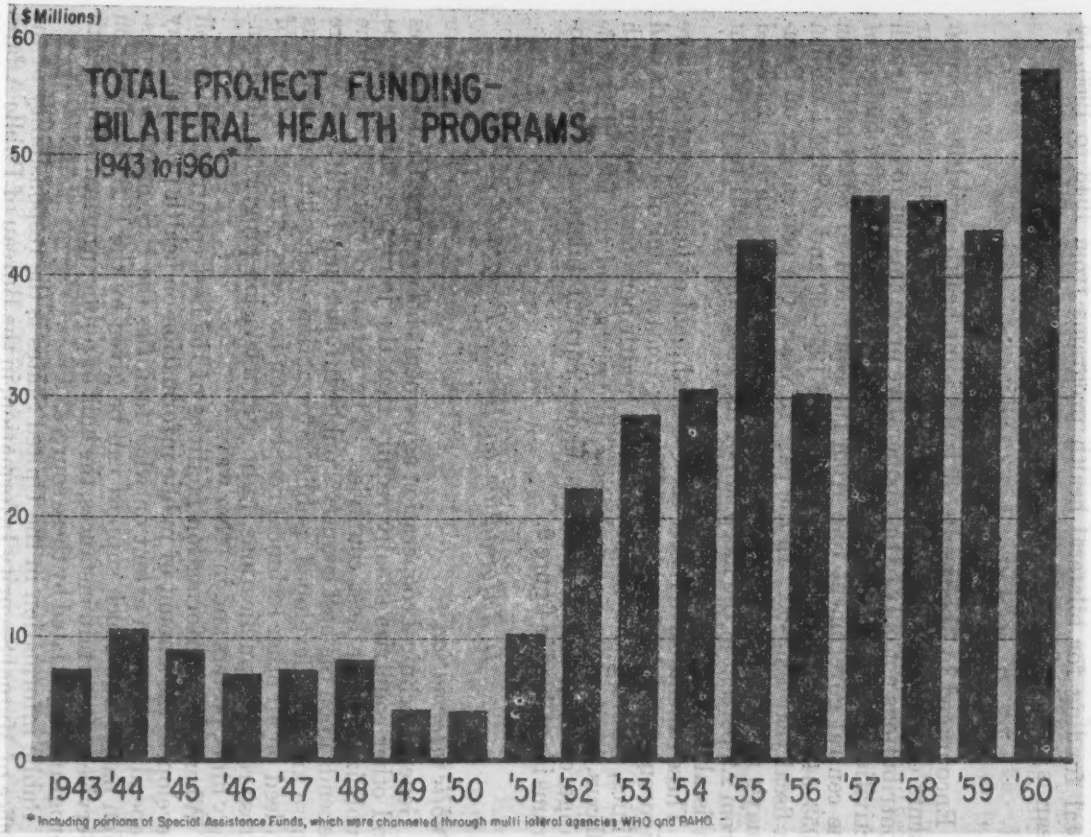
($ Millions)
60
50
40
30
20
10
0
TOTAL PROJECT FUNDING-
BILATERAL HEALTH PROGRAMS
1943 to 1960*
1943 '44 '45 '46 '47 '48 '49 '50 '51 '52 '53 '54 '55 '56 '57 '58 '59 '60
* Including portions of Special Assistance Funds, which were channeled through multi lateral agencies WHO and PAHO.

FIGURE 10A

B. Current Annual U.S. Expenditure

The current annual expenditure of the United States for its bilateral health programs and activities in 1960 is over $57 million. This sum also includes development assistance funds occasionally made available to implement health programs in highly strategic areas. The total funding for bilateral health programs from 1943 to 1960, by year, is given in figure 10a.

C. Host Country Contributions Increase

Encouraged by the results of truly joint health activities, governments of the less developed countries have sharply increased their contributions not only to the cooperative programs but to other health activities as well. In India, for example, the total health budget of the central government rose from the equivalent of $82.8 million in 1953–54 to $157.7 million in fiscal year 1958–59 and to $185.1 million in fiscal year 1959–60. In the past 10 years, the percentage of Paraguay's national budget which was expended for health has increased from 2.9 percent at the inception of the program in 1951 to 4.0 percent in fiscal year 1959.

These expenditures reflect the establishment of health centers, more vigorous control of epidemic diseases, construction of hospitals and clinics, training and employment of health personnel—public health officers, sanitary engineers, nurses, midwives, and the like. The wide range of activities undertaken under current bilateral health programs is outlined in figure 9.

D. Information on Health Programs

Public information

General technical cooperation agreements between the United States and other countries usually require that the joint programs shall be publicized in the host countries. The extent to which this is done depends upon the host country's public information facilities. Where these are well developed, public information on health programs, as indeed on all other technical cooperation projects, is given by way of press releases, publications, radio and television programs, documentary films, posters and in other ways.

When public information facilities of the host country are not well developed, the amount of public information on health programs may depend to a certain extent on what facilities the U.S. operations mission has or how much support can be given by the U.S. Information Service. In certain instances, the bulk of public information on health programs is initiated by these sources.

Public information in the United States is the responsibility of the Office of Mutual Security Information, in the Bureau of Public Affairs of the Department of State. The principal forms in which program information reaches the public by this means are press releases, publications, and speeches by officers of the Department. Material prepared for the Congress adds an important amount to the background literature available to members of the press who are particularly interested in the health field, and to research investigators generally.

The Office of Public Health in ICA itself is called upon to supply display material for public health meetings, to answer inquiries about

operations of health programs, and to reply to persons interested in joining the programs. This Office also issues periodically a "Health Summary" (mimeographed) with excerpts from field reports. The Office of Public Health is the principal source of health information used by the Office of Mutual Security Information.

Technical information

An important aspect of health programs abroad is public health education. Much use is made of audiovisual materials—films, filmstrips, flip charts, posters, instructional pamphlets, and the like. In many countries, the United States helps other governments in this field through ICA's communications media staff.

Some of these materials may be of use in the public information field; most of them are for instruction, and they provide, where there is a low literacy rate, the best means for getting the principle of preventive medicine across to the people.

Section III—Operations

A. Relationship Between Health and Other Forms of Technical Cooperation in Emerging Nations

(a) First recognized in planning

The relationship between health programs and other forms of technical cooperation is first recognized in the planning of country programs. Ideally, there exist certain guidelines for this planning, which is coordinated with the host government. However, there is no set pattern for health services which fits every situation and under which joint planning can be always effected in a systematic manner. Each country is considered an individual case and the planning and implementation of programs is tailored to meet the needs of each particular economy and culture.

The United States assists the host country government in developing plans to meet health needs. The government of the host country has primary responsibility for using the contributions to the bilateral programs. At the same time, assistance from the United States is dependent on the availability of funds, following consideration of where technical cooperation funds may best be used in terms of all bilateral program priorities. Hence, in planning health programs to relate to other cooperative activities, the United States coordinates the program with the host country at two main levels:

(1) At the cooperative program level, officials of the U.S. Government may assist the host country in the preparation of a master health plan and select what are the most effective joint projects that may be undertaken to fit within that plan.

(2) At the overall program level the health program is considered in joint planning to determine its priority in relation to other technical cooperation activities.

(b) Relationship to other forms of technical cooperation

There are many specific ways in which health programs relate to other forms of technical cooperation. For example, since agriculture is the chief occupation of the people in most of the newly developing countries, economic progress begins with agriculture. A key factor is the health and full energy of the farmers or agricultural workers

themselves. Malaria is essentially a rural health problem and reduction of malaria incidence is immediately reflected in increased agricultural production. Yaws also affects large numbers of rural people. Bilharziasis, a disease which requires snails for its transmission to human beings, is linked with irrigation, an established farm practice in much of the world.

In many countries, mining is a key industry and mineral products may be a primary source of foreign exchange. Projects to reduce occupational hazards, and to protect workers against occupational diseases such as silicosis, therefore make an important economic contribution.

Problems of housing and education are related to health. The overall approach to social and economic progress, called "community development," involving education, better methods of agriculture, better health practices and cooperative activity of many kinds, provides an example of the integration of health programs at the working level of contact with people themselves.

Health and economic development.—The concept of health as a part of economic development along with education, agriculture, and housing is the basis of the coordinated country program of today. The concept is the product of the past few years of international cooperation.

First formal technical cooperation.—The first formal type of technical assistance offered by our Government to another government consisted of a response to a request for an individual, a specialist, to go to another country to provide a specific service—usually short term—and then return to the United States. On occasion there was a sharing of the expenses by the recipient country. Our efforts to coordinate these individual requests resulted in the formation of the Interdepartmental Committee on Scientific and Cultural Cooperation (SCC described in sec. IB, p. 428).

Cooperative approach during World War II.—The war required a more intensive approach to cooperation, and health teams of professional and technical personnel were made available to other countries; they were equipped with funds to implement programs of training, to develop health facilities and services, and to work in cooperation with local teams. During this period the "basic economy" concept was practiced, based upon the idea that in a large measure the economy of a country depends upon the quality of its education, health, and agriculture practices. This concept was characteristic of the IIAA approach to technical cooperation.

B. Operational Considerations

U.S. technical cooperation is made available upon request by the government of another country through regular diplomatic channels. The United States does not determine what the health program in another country shall be, although its health specialists may help that country to determine its needs, introduce innovations, and increase the skills of the people. In view of the rapid development in medicine, health technicians may bring knowledge of new development to the attention of the host government. Assistance in building up local skills is essential to the success of all programs and is an integral part of the program design.

(*a*) *Deciding on activities*

In most countries where technical cooperation is in effect, there is a U.S. operations mission made up of personnel assigned by the International Cooperation Administration in Washington. Health personnel of the United States attached to the mission work with health officials of the host country in planning specific projects to meet recognized needs which are then submitted to ICA and to the host government for approval.

Requests for technical cooperation may be of various types: (1) For a specific service, such as a survey or special study of a disease or of a health problem, with the formulation of plans for its solution, (2) for assistance in the development of maternal and child health services, basic sanitation, or effective guidance in public health administration at federal, state, and local levels, (3) for help in time of epidemic or disaster, (4) for help in the development or reorganization of urban or rural public health services, including some material assistance for pilot projects, or (5) for the development of training programs for medical and paramedical personnel. Except for emergency assistance in epidemics and disasters, all operative endeavors are designed to strengthen host country institutions. These programs, which include provision of American technicians and some material and equipment, are usually comprehensive and long range.

(*b*) *Bilateral agreements*

Before specific implementation of proposed programs can be undertaken, it is necessary for the appropriate personnel of both countries to document the conditions surrounding these requests in terms of its relationship to the economic and social development of the country. Experience has proved that mutual agreement upon plans for reaching health objectives is imperative to the orderly implementation of these requests.

Three types of bilateral agreements for establishing and implementing health programs are:

ICA Country Agreement.—This general agreement, often referred to as the "Umbrella Agreement," is signed by the U.S. Ambassador and the Minister of Foreign Affairs. It states the basic intent of and mutual understanding for the overall technical cooperation program in the host country, which may include health, education, agriculture, and other technical programs, and makes provisions for more specific agreements to follow.

Program Agreement.—The technical and administrative guidelines for the bilateral health programs are based upon this agreement. Technical and legal consultation assures the adequacy and accuracy of the technical content and the proper compliance with the laws, orders, or other provisions of both countries. Included within the framework of this basic agreement are the following: (1) General statement of purpose followed by specific objectives; (2) administrative and financial rights, responsibilities, and obligations of both parties to each other and to the employed personnel; (3) general information on proposed cooperative activities; (4) the kind of assistance involved (technical, material, personnel, etc.); and (5) guidelines for evaluating the progress of health projects and subsequent termination of U.S. participation.

Project Agreement.—The project agreement clearly establishes what action is proposed for each separate health project, why it is necessary, how it is to be carried out, and how much it will cost. It describes the duties and responsibilities of each party, sets the limits of the project, and provides for its evaluation and ultimate continuation by the host country.

ICA personnel use the following criteria in negotiating project agreements with host countries:

> Project agreements should be consistent with the terms of the country and program agreements and with the criteria of feasibility and possibilities of success on the basis of economic and cultural factors. Each project agreement should state the problem or problems to be solved, define the objectives to be reached, set forth a plan of operation and an estimated schedule for completion of the project. It should clearly provide for meeting the cost of the project, specifying amounts of money to be used as well as the source of such funds; i.e., ICA funds, ministry and other funds. The assumption of financial and administrative responsibility for continuation of the activity by the Ministry of Health or other appropriate governmental unit should also be stipulated.
>
> The essential steps to be taken after a project agreement has been signed include the following: (1) Securing qualified personnel for the execution of the project,[15] (2) training of personnel as necessary, (3) provision of physical facilities for the project, (4) procurement of required supplies and equipment, and (5) securing public understanding, support, and appropriate participation in the project.[16]

Whether all three types of agreements described above are used depends to some extent on the character and number of requests. In the Western Hemisphere all bilateral programs have customarily used all three agreements. Throughout the Far East, South Asia, and to some extent the Middle East, the ICA country agreement and the project agreement have been used. Nearly all the health programs of the Far East, Near East, and African areas—with the exception of the Joint Commission for Rural Reconstruction in Taiwan, and the Iran, Libya, Nepal, and Ethiopian programs—have been of the special consultation (fig. 13) or cooperative project type of operational pattern (fig. 12). The cooperative service pattern (fig. 11) has characterized the programs in the Western Hemisphere.

(c) Contracts with third parties

The U.S. operations missions—the field arms of ICA, Washington—may enter into agreements with third parties to carry on health activities. The actual negotiation of contracts may be done in the field or through ICA, Washington, depending upon the size and complexity of the undertaking. The third party may be a government entity, a nonprofit institution, or a commercial company. Such contracts, under proper conditions, are most useful when confined to a specific activity or project; they are generally not successful in a broad field. University contracts implemented on a university-to-university basis are normally very successful.

While the contract method is generally a more expensive way of carrying out a health activity, it is in many instances the best way. This is particularly true when the contract involves "institutionalizing" skills; that is, the establishment of curriculums or the training of host country teachers who will pass on this specialized knowledge to their countrymen.

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[15] See Appendixes C, D, E in reference to ICA health personnel.

[16] Technical Conference of Public Health, Lima, Peru, March 2–6, 1959, "Conclusions Concerning the Implementation of Bilateral Technical Cooperative Action."

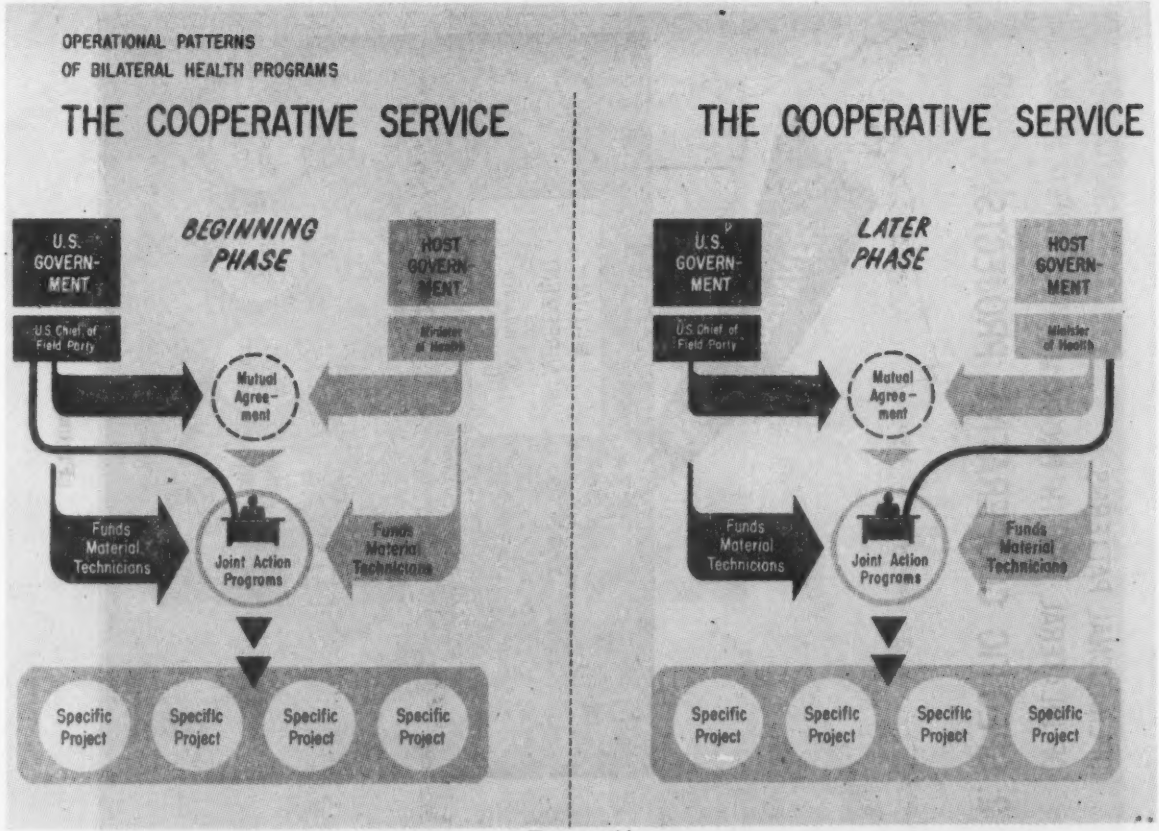
OPERATIONAL PATTERNS
OF BILATERAL HEALTH PROGRAMS
THE COOPERATIVE SERVICE
BEGINNING PHASE
U.S. GOVERN-MENT
U.S. Chief of Field Party
HOST GOVERN-MENT
Minister of Health
Mutual Agree-ment
Funds Material Technicians
Joint Action Programs
Funds Material Technicians
Specific Project
Specific Project
Specific Project
Specific Project
THE COOPERATIVE SERVICE
LATER PHASE
U.S. GOVERN-MENT
U.S. Chief of Field Party
HOST GOVERN-MENT
Minister of Health
Mutual Agree-ment
Funds Material Technicians
Joint Action Programs
Funds Material Technicians
Specific Project
Specific Project
Specific Project
Specific Project

FIGURE 11

OPERATIONAL PATTERNS
OF BILATERAL HEALTH PROGRAMS:
2. SPECIFIC COOPERATIVE PROJECTS
TEAM OF U.S. HEALTH PERSONNEL
HOST COUNTRY
MUTUAL AGREEMENT
On Individual Health Projects
USOM
U.S. Personnel
Specific Project
Specific Project
Specific Project
Specific Project

FIGURE 12

OPERATIONAL PATTERNS
OF BILATERAL HEALTH PROGRAMS:
3. SPECIAL CONSULTATION
REQUEST FOR HEALTH ASSISTANCE
HOST COUNTRY
SPECIAL PROBLEM
U.S. PUBLIC HEALTH SPECIALISTS
INVESTIGATE PROBLEM
MAKE RECOMMENDATIONS

FIGURE 13

(*d*) *Implementation*

Obviously, health needs are so great that many requests for assistance must be denied because of the limitations of U.S. personnel and funds. Every effort is made to evaluate proposals so that the limited resources will be applied where the expected dividends are greatest. However, in the case of some meritorious proposals, ICA field personnel have helped to secure aid by advising the host country of other sources and by coordinating the ICA health program with WHO, UNICEF, PAHO, nonofficial, or voluntary agencies and health programs of other governments.

A primary consideration in ICA's evaluation of a request for technical cooperation is the relationship of the suggested health projects to the economic and social development of the host country as previously stated. The following questions are considered: Are sufficient resources available to deal effectively with the problem? Can the project be administered effectively? Are there enough trained persons to carry it out or can personnel be trained? Will the project be acceptable to the people of the country or will it interfere with some deeply ingrained cultural pattern? Is it a long-term project or a short-term project? After the project is in successful operation, will it be continued by the host country as a regular activity without further U.S. participation?

Projects involving control of specific diseases usually meet these conditions. Technical cooperation, however, also has other objectives in addition to the control or eradication of specific diseases. Effective public health administration in a given nation requires an organizational structure within government to assemble data on health problems, to prepare programs for immediate or long-range improvement, to work out budgets for health expenditures, to supervise on-going activities, to develop health education services, and to overcome deficiencies in health facilities, trained personnel, and research. Past experience has shown that programs aimed at specific diseases have far-reaching influence in strengthening national health services even though the goal appears to be more limited.

More trained health personnel are needed at all levels in newly developing countries—public health administrators, physicians, nurses, entomologists, nurse aids, midwives, health educators, sanitary engineers, sanitarians, laboratory technicians, and health statisticians. Modern health facilities need to be established, as well as sanitary installations for safe water supply and excreta disposal. Medical and nursing schools need to be developed or expanded. Most of all, the concept of preventive medicine needs to be understood by more Government officials, health personnel, and the general public. (See also statements above on technical and public information, pp. 446 and 447.)

(*e*) *Three basic patterns of operation*

After the request for a health program has been received and the bilateral agreements have been completed, the general pattern of operation must be determined. At least three patterns or administrative devices have been employed during the past 18 years.

The planning and implementation of a public health program in any host country is the responsibility of the government of that country, and ICA personnel enter into planning only at the request of the

country. The major objectives of bilateral technical cooperation in health are—

1. To promote and strengthen friendship and understanding between the peoples of the host country and the United States of America by demonstration of the sincere interest of the United States in human welfare.
2. To facilitate the development of public health service and programs in the host country through cooperative action.
3. To stimulate and increase the interchange of knowledge, skills, and techniques in the field of public health between the two countries.

The three basic types or administrative devices for implementing bilateral health programs as shown in the accompanying charts are—

The cooperative service (*fig. 11*).—Under the provisions of a formal program agreement, which states the objectives, the program, fields of activities, the amounts of financial resources, conditions for employment of personnel, etc., a group of U.S. health personnel are joined to a group of host country health personnel. Such a group is usually identified as an integral part of the host country Ministry of Health. Thus, U.S. technicians, as members of the cooperative service advise and work as partners with officials and technicians of the host country government.

In the beginning, direction of the joint health service is usually undertaken by a U.S. administrator, until a trained and qualified national administrator can take over these duties, at which time the U.S. administrator assumes a consultative status. Such a cooperative program provides within its own framework, administrative, managerial, and supervisory services which often form a firm basis for effective local program implementation and support. This cooperative service administers and controls the joint funds for those projects agreed upon in the formal program agreement.

Specific cooperative projects (*fig. 12*).—In this type of operation a group of U.S. health personnel are attached to the U.S. operations mission (USOM)[17] in a given country, and are assigned to a variety of projects which have been established by the mutual agreement of the United States and the host country. These personnel work as technical advisers to the USOM and sometimes engage in limited operational activities with their national counterparts. Since, in this type of operation a program agreement does not exist, the activities are limited to specific projects. Administrative, managerial, and supervisory functions are provided by the host country. Control of U.S. funding is carried out by the director of the USOM. Contracts between ICA and universities[18] are used to provide personnel, and in some instances, project direction.

Special consultation (*fig. 13*).—In this pattern of operation the host country requests the services of a specialist to help solve some pressing health problem. The United States pays the salary and travel, and shares the cost of appropriate working facilities and funds for local travel. The U.S. technician, working with host country technicians, investigates the problem and makes recommendations for its solution.

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[17] The International Cooperation Administration (ICA) has field missions located in about 55 nations of the free world. (See fig. 5 for location of health missions.) These missions are called U.S. operations missions (USOM).

[18] ICA has contracts with 56 American universities which in turn have personnel in 35 foreign countries. Twelve of these contracts are in the field of health. See app. B.

All three of these operational patterns exist within the framework of bilateral cooperative health programs. Each type has its limitations and advantages. Each type is now used by ICA under appropriate circumstances, and from time to time programs are modified from one type to another.

Regardless of the operational pattern employed, the final success depends upon relationships between people. Hence, the role of the U.S. technician is of the utmost importance. Public health, being a multidisciplined area within the broad sphere of the medical, technical, and social sciences, depends for success not only upon interpersonal relations between the United States and host country personnel but also upon interdisciplinary relations. Public health, as practiced in almost all countries, uses the team approach to mass problems. The United States also employs the team concept in its bilateral health activities. In a cooperative health program the basic health team is considered the nucleus of a cooperative program staff. Customarily, a basic team comprises a public health physician, a nurse, a sanitary engineer, a health educator, and a public health administration specialist.

(*f*) *Development of program criteria*

To initiate, operate, and terminate a given health program, certain criteria are developed bilaterally at the country level. These criteria are designed not only to assist in determining the past results and present status of the program, but also to establish a basis for improving future operations. Some conclusions concerning the evaluation of bilateral technical cooperative action in health are given in appendix F.

Certain guidelines are kept constantly in mind in selecting the health activities in which the United States can make the greatest contribution. In working with host country technicians, U.S. technicians help their colleagues to resolve problems for themselves. Hence, in due time, these acquired capacities and adapted services provide a firm basis for strengthening the professional and institutional development of the host country.

While many activities are actually theoretically desirable, certain ones are impractical for technical, scientific, administrative, or cultural reasons. These factors have been considered in establishing priorities which are based on the demonstrated ability of a health program to:

1. Strengthen the economy by the provision of health benefits which release effective human energy, improve citizen morale, improve environment for local and foreign investment, open new land and project areas;
2. Reach large populations with needed health service to demonstrate our deep human interest in the dignity and welfare of man.

The appropriateness of such activities depend upon: technical and administrative feasibility, early recognizable results, results attainable relative to cost, takeover ability by host country, and the number of persons affected.

(*g*) *Examples of priorities*

Examples of the levels of priorities which have been applied to various activities being considered for a cooperative program are as follows: [19]

First priority.

Mass campaigns against malaria and yaws, where they are major problems; and against selected gross nutritional deficiencies such as kwashiorkor, beriberi, xerophthalmia, and goiter, where they may be readily attacked.

Development of protected small community water supplies.

Demonstrations, through health centers, of services on a communitywide basis, including sanitation, communicable disease control, health records and statistics, home visiting, maternal and child health, nutrition, health education, laboratory, and general clinical services, where required to gain acceptance of the community. Health centers may be used for subprofessional training and field experience for professionals and should be limited in scope and number to the national capacity to absorb and operate them.

Advice and cooperation in strengthening and lending stability to the organization and operation of public health administration of the host government.

Inclusion of training and health service projects in proposed or existing community or village development programs.

Advice and cooperation in planning, designing, and supervision of the construction of hospitals, health centers, laboratories and other health facilities.

Development and support of basic training of nurses to demonstrate the proper status of nursing as a profession and to provide leadership for training of indigenous personnel.

Training of subprofessional personnel to meet major specific health problems in preventive medicine, nursing, sanitation, and limited medical services; such training to develop personnel for a planned program, which must also include professional supervision and periodic refresher training. Where practicable, opportunity should be given for advancement of outstanding individuals to higher levels.

Fellowships for professional training in public health, in the United States, preferably project-related and not necessarily limited to 1 year, awarded to physicians, engineers, nurses, health educators, laboratory technicians, public health statisticians, and administrators.

Programs for training key medical schoolteachers in major clinical and preclinical specialties. Training should be provided in the host country or region to the maximum extent possible.

Construction of demonstration health centers and nursing schools when necessary to the success of these programs by insuring physically adequate, effectively planned facilities.

Second priority.

Mass campaigns against other diseases than those previously mentioned where they are of major importance; i.e., trachoma, louse-borne typhus, and leprosy.

Consultation on urban water or sewerage system.

X-ray, audiovisual, or other major equipment for hospitals or health centers.

Excreta disposal projects, other than as an integral part of a general community sanitation program.

Refuse disposal, fly disposal, and food protection projects.

Assignment of U.S. personnel to foreign institutions, except on a short-term consultation basis (3 months or less).

Occupational health services.

Projects for tuberculosis immunization (BCG), casefinding, and ambulatory treatment, where the problem warrants and facilities permit.

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[19] Joint statement, currently being revised, by the Public Health Division, FOA (ICA) and the Public Health Service and the Children's Bureau of the U.S. Department of Health, Education, and Welfare. "Priorities in International Technical Assistance Health Programs," Mar. 25, 1954.

Third priority.

Mobile clinics requiring specialized motor equipment, or those used for general medical care.

Construction or financing of construction of hospitals, water and sewerage systems, or other major structures.

Operation of hospitals by U.S. personnel or at U.S. expense.

Training of practicing physicians in clinical specialties in the United States.

Dental health projects.

Mental hygiene projects.

Establishment, equipping, or operation of blood banks.

Medical rehabilitation projects.

Mass treatment for intestinal parasites.

Geriatrics projects.

Poliomyelitis control or treatment projects.

Training in tropical medicine in the United States.

The conditions, problems and cultural features of each country differ from those of another country, so that the actual results of this priority selecting process likewise differ from country to country. No blueprint or fixed pattern is possible or desirable. The main requirement is that this type of priority rationale be employed, and that a justifiable position with regard to implementation be reached in all projects.

The next step in the operations sequence, preceding implementation, is to measure the results of this selection against the conditions stated in the "umbrella" or country agreement, in order to insure that implementation be consonant with general program activities in other fields, such as education, agriculture, and industry.

In Washington, planning carried out by the USOM staff is reviewed technically and these activities are brought together by area, into a total ICA overseas program for presentation to Congress. These data—evidence of program planning and implementation—are sent to ICA to become the basis for congressional presentation and subsequent funding.

Section IV. Programs and Achievements

The United States can be proud indeed of its role in assisting other nations in developing better health services. These programs, as previously indicated, are cooperative programs and the credit for their achievements rests jointly with the host country and the United States.

The major objective of strengthening national health services cannot be measured by any formula, but there is a great deal of evidence that ICA, along with WHO and the U.N., has materially assisted countries in the accomplishment of this objective.

A selected group of achievements from countries around the world has been compiled. No attempt has been made to provide a complete coverage, but only to highlight a few pertinent activities in various categories. Presented in greater detail are the two major programs—worldwide malaria eradication and a plan for national community water supply.

A. Control of Specific Diseases

Communicable diseases are still the major cause of disability and death in emerging nations. Good techniques are available for controlling most of them. Mass disease control campaigns are among the most effective and most welcome of bilateral activities—a case in point

being the current worldwide malaria eradication program, which is discussed in detail later in this section. Campaigns for control of other diseases such as trachoma, yaws, schistosomiasis, and filariasis figure prominently in ICA programing. Results contribute to the economic development of host countries, and such campaigns are used to stimulate interest in permanent health organizations.

(*a*) *Worldwide malaria eradication*

Although the malaria eradication concept is now accepted on a worldwide basis, the people of the United States have long been interested in the elimination of this devastating disease both at home and abroad.

The control program.—Great impetus was given to an already widespread malaria control operation carried out in many States when, in 1942, the U.S. Public Health Service established the Office of Malaria Control (MCWA) in War Areas (now the Communicable Disease Center) in Atlanta, Ga. Thirteen State health departments, working closely with MCWA, succeeded during the next few years in reducing the incidence of malaria to a very low point in areas significant to the war effort. This program was extended in 1947 to prevent the reintroduction of malaria, by thousands of returning servicemen infected abroad, into countries where it previously had been prevalent. The new insecticide, DDT, was useful because of its long-lasting lethal properties. By 1953, when Federal support of insecticide spray operations was discontinued, malaria endemnicity had been eliminated. During the period 1942 to 1953, approximately 54 million of Federal, State, and local funds were expended on the control and eventual eradication of this disease which had been costing the United States economy an estimated $500 million a year in sickness and loss of production.

Significant participation by the United States in international malaria control programs began soon after our country entered World War II. Beginning with our entrance into that war, the U.S. Armed Forces began to move into many malarious areas of the world. The imperative need of conquering this disease soon became apparent. Fortunately, DDT was available in 1943 and became our most valuable ally in this historic disease control campaign. Some of the projects (e.g. Liberia, Philippines) have been carried on continuously until now they are part of the worldwide malaria eradication program.

Assistance was given to Latin American countries in their fight against the disease in the early 1940's. Malaria had long been recognized as one of the most important diseases in Latin America and many countries have initiated limited control programs. When the Institute of Inter-American Affairs, now part of the International Cooperation Administration (ICA), was established in 1942, the technical and financial support of these national malaria control programs was among the first projects undertaken. Over the 8-year period 1942–50, 163 malaria control projects were developed in cooperation with IIAA in 15 [20] Latin American Republics at an expenditure of $9.5 million. The geographical distribution of malaria as it existed prior to 1946 is shown in figure 14.

[20] Countries and dates initiated: 1942—Bolivia, Brazil, Ecuador, Guatemala, Haiti, Honduras, Nicaragua, and Peru; 1943—El Salvador, Panama, and Venezuela; 1944—Colombia, Dominican Republic, Mexico; 1945—Costa Rica.

GEOGRAPHICAL DISTRIBUTION OF MALARIA BEFORE 1946
BEFORE RESIDUAL INSECTICIDES WERE USED
Territories free of malaria
Territories where malaria transmission is precluded because of altitude or desert conditions
Malarious territories

FIGURE 14

The possibility of malaria control unprecedented in history began with the advent of the Marshall plan for European recovery in 1948. Technical and financial resources were available to do a thorough job. The World Health Organization had just been organized (1947) and quickly selected malaria as one of its principal targets.[21] The U.S. Government, through the Marshall plan and its successor agencies (Economic Cooperation Administration, Foreign Operations Administration, International Cooperation Administration) gradually expanded its bilateral assistance to malaria control programs of the world until 1956 when it was spending $12 million annually in 21 countries.

The eradication concept evolves.—Rapidly tumbling malaria incidence rates resulted. In some areas, such as the United States, Puerto Rico, and Italy, the work was sufficiently thorough to eradicate malaria throughout the countries. In others, such as Venezuela, malaria eradication was achieved in most areas. It was therefore logical that consideration was given to worldwide malaria eradication. A determination to eradicate malaria from the Western Hemisphere was made in the form of a resolution at the 14th Pan American Sanitary Conference at Santiago in 1954. The following year (1955) the Eighth World Health Assembly in Mexico City considered the mounting evidence concerning the feasibility of eradication and adopted Resolution WHO 8.30 which:

1. Requests governments to intensify plans of nationwide malaria control so that malaria eradication may be achieved and the regular insecticide-spraying campaigns safely terminated before the potential danger of a development of resistance to insecticides in anopheline vector species materializes:

2. Authorizes the Director-General to request those governments in whose countries malaria still exists to give priority to malaria eradication projects in their requests for assistance under the United Nations Expanded Program of Technical Assistance, and to provide the locally available resources which are required to achieve malaria eradication: * * *.

International Development Advisory Board Study.—Early in 1956, the International Development Advisory Board (IDAB) studied the feasibility of eradication of the disease and, in collaboration with the Public Health Service and with the help of Dr. Paul F. Russell, proposed that the U.S. Government provide technical advisory and financial assistance to a worldwide effort. It was estimated that within a 5-year period of concentrated effort and resources, eradication could be achieved in much of the world. Africa, Borneo, New Guinea, the Amazon Valley and some similar areas were excluded from consideration. This proposal was presented to Congress by the International Cooperation Administration early in 1957 (congressional presentation, fiscal year 1958), after receiving on May 21, 1957, generous endorsement from President Eisenhower, who stated:

I should like to note especially one of these anticipated requirements. I refer to a program—malaria eradication—which will appear separately in the bill proposed to the Congress but will be financed from the special assistance fund.

Malaria is today the world's foremost health program. Each year it attacked 200 million people, bringing death to 2 million and causing enormous suffering and economic loss in many areas. Today it is practicable to end this scourge

[21] See also committee print, "The United States and the World Health Organization—Teamwork for Mankind's Well-being," May 11, 1959.

in large areas of the world. I propose that the United States join with other nations and organizations which are already spending over $50 million a year on antimalaria activities. In 5 years these activities are expected to eradicate this disease.

Legislative provision and authorization.—The proposal received favorable consideration and the Mutual Security Act of 1954 was amended to provide for worldwide malaria eradication under section 420, as follows:

SEC. 420. *Malaria Eradication.*—The Congress of the United States, recognizing that the disease of malaria, because of its widespread prevalence, debilitating effects, and heavy toll in human life, constitutes a major deterrent to the efforts of many peoples to develop their economic resources and productive capacities and to improve their living conditions, and further recognizing that it now appears technically feasible to eradicate this disease, declares it to be the policy of the United States and the purpose of this section to assist other peoples in their efforts to eradicate malaria. The President is hereby authorized to use funds made available under this Act (other than chapter I and title II of chapter II) to furnish to such nations, organizations, persons or other entities as he may determine, and on such terms and conditions as he may specify, financial and other assistance to carry out the purpose of this section: *Provided*, That this section shall not affect the authority of the Development Loan Fund to make loans for such purposes, so long as such loans are made in accordance with the provisions of title II of chapter II.

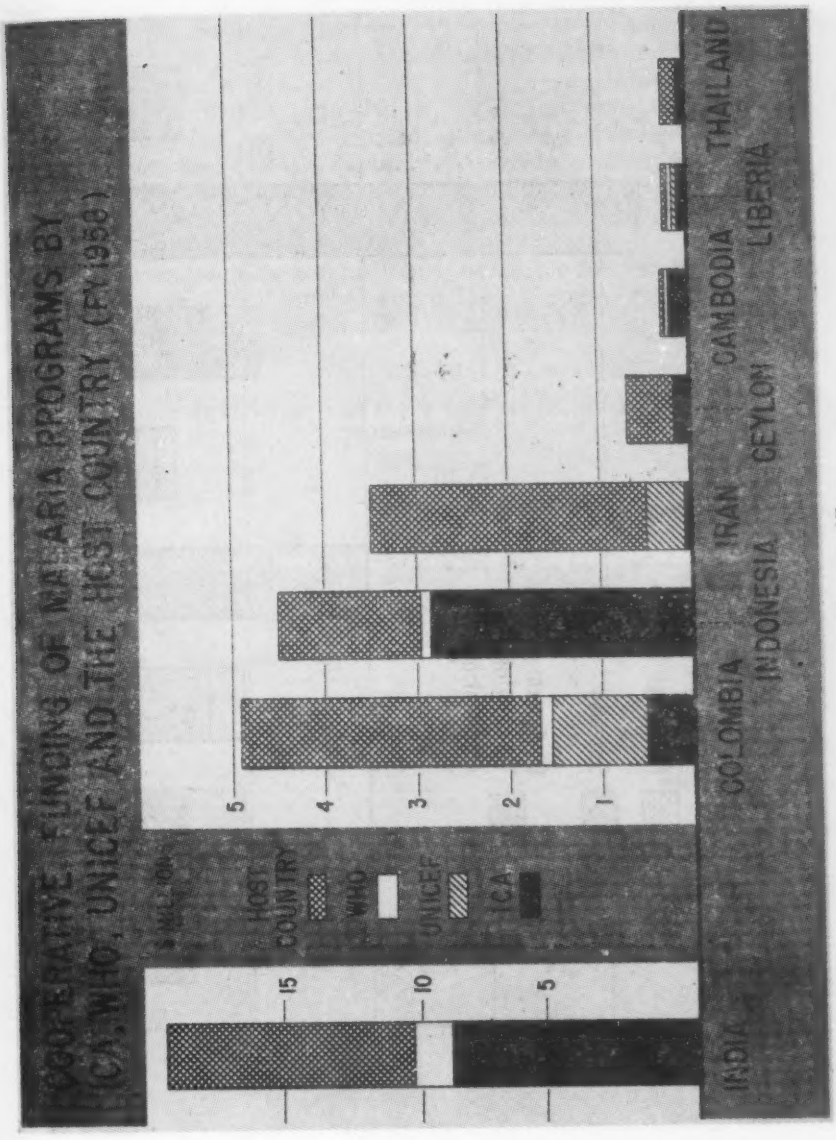
COOPERATIVE FUNDING OF MALARIA PROGRAMS BY ICA, WHO, UNICEF AND THE HOST COUNTRY (FY 1958)
MILLION
HOST COUNTRY
WHO
UNICEF
ICA
15
10
5
5
4
3
2
1
INDIA
COLOMBIA
IRAN
CAMBODIA
THAILAND
INDONESIA
CEYLON
LIBERIA

FIGURE 15

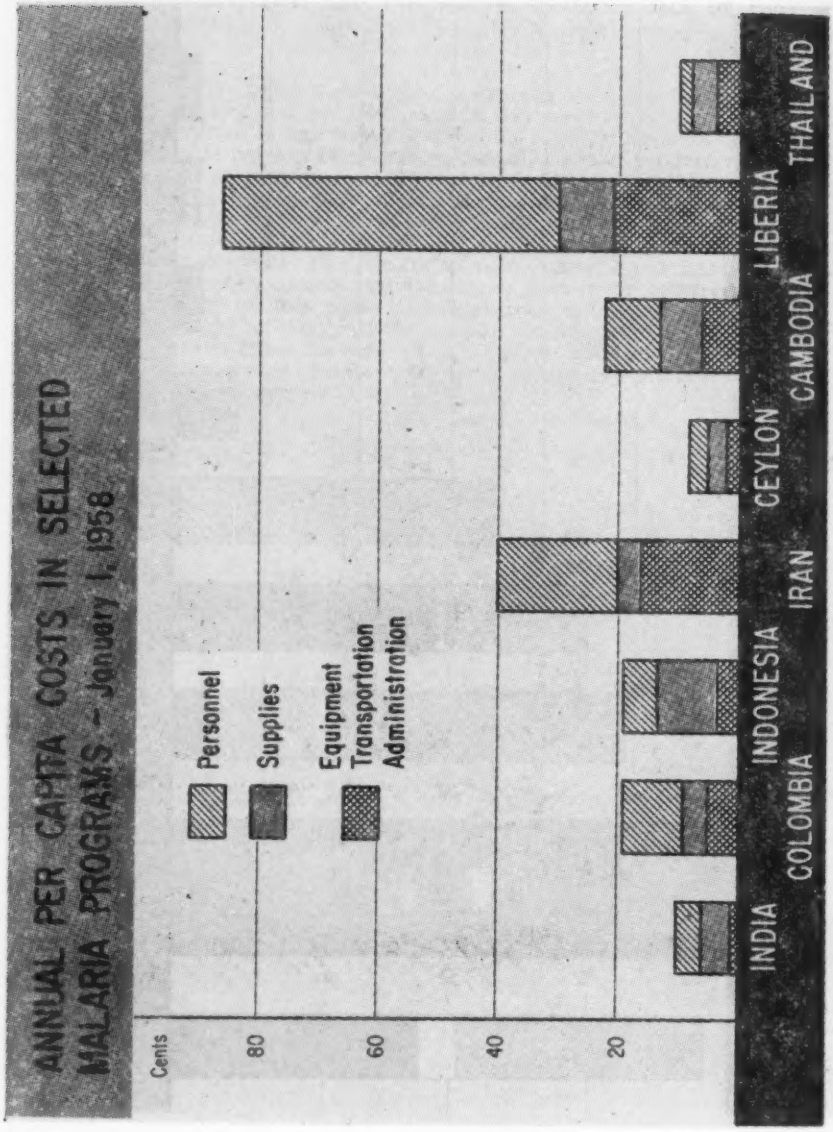
ANNUAL PER CAPITA COSTS IN SELECTED MALARIA PROGRAMS – January 1, 1958
Cents
80
60
40
20
Personnel
Supplies
Equipment
Transportation
Administration
INDIA
COLOMBIA
INDONESIA
IRAN
CEYLON
CAMBODIA
LIBERIA
THAILAND

FIGURE 16

This legislation was backed by an authorization: (1) to utilize $23.3 million of Mutual Security funds in converting malaria programs then being supported by the United States, from control to eradication; (2) to undertake support of a few additional bilateral eradication programs; and (3) to provide financial support to the special malaria accounts of the World Health Organization and the Pan American Sanitary Bureau. Presidential authorization was secured during the year for the expenditure of additional funds for this purpose to make a total of $27.24 million expended on a worldwide basis as shown in the table below. The representative funding of malaria programs by the United States and host governments in selected countries (India, Colombia, Indonesia, Iran, Ceylon, Cambodia, Liberia, and Thailand) in 1958 and the annual per capita costs of these programs are shown in figures 15 and 16.

Funds expended and available.—During fiscal year 1959, $26.2 million was expended—$32 million is available for fiscal year 1960 for ICA assistance to 26 countries and U.S. voluntary contributions to the multilateral organizations, WHO and PAHO.

TABLE I

U.S. GOVERNMENT FUNDING OF WORLDWIDE MALARIA ERADICATION PROGRAMS FISCAL YEARS 1958–60 [22]

[In thousands]

	Fiscal year 1958	Fiscal year 1959	Planned, fiscal year 1960
Far East	4,802	4,438	6,842
Near East and South Asia	12,337	11,011	13,663
Africa	451	347	689
Latin America	2,512	4,233	5,578
Administrative and technical support	138	176	228
WHO grant	5,000	3,000	3,000
PAHO grant	2,000	3,000	2,000
Total	27,240	26,205	32,000

[22] Not shown is $1.5 million contributed to PAHO in fiscal year 1957. Also, in addition to the dollar funding shown for the individual countries, are the equivalent of several million dollars provided through the use of U.S. owned or U.S. controlled local currencies.

FIGURE 16

WORLD-WIDE STATUS OF MALARIA ERADICATION EFFORTS
AS OF JANUARY 1959

FIGURE 17

Of the $11.6 million thus far contributed to the malaria eradication special account of WHO in 3 years, the United States has provided $11 million. The PAHO special malaria account contributions to date total $9,044,400, of which the United States has given $8,500,000 since 1957. The worldwide status of malaria eradication efforts in January 1959 is shown in figure 17.

How funds are used.—These funds, over and above those given to WHO and PAHO, are used in a variety of ways for pressing the global attack on malaria. Approximately 60 ICA specialists including entomologists, parasitologists, epidemiologists, sanitary engineers, sanitarians, and administrative personnel are employed in the program. The greatest single expenditure, however, is for the purchase of insecticides. It is estimated that 60,000,000 pounds of DDT 75-percent water dispersible powder will be purchased this year by ICA from U.S. firms and shipped to all parts of the world to serve as the principal weapon in the attack against malaria. Antimalarial drugs, particularly chloroquin, amodiaquin, pyrimethamine, and primaquin are being purchased to supplement the use of insecticides. Other expenditures are for the purchase of laboratory equipment, vehicles, and hand compression sprayers.

Training.—One of the important expenditures in the ICA budget is for training, which is accomplished in several ways. First, ICA specialists in the various countries work with the national government personnel and in many instances help train such personnel. In Indonesia, for example, an ICA malaria specialist is assigned full time to train personnel in the operation of a malaria program which eventually will require 15,000 employees, from the director down to the sprayman. The second type of training is that accomplished either in the United States or in one of the two malaria eradication training centers for international personnel supported by ICA. One of these centers is located in Kingston, Jamaica, and is supported cooperatively by ICA and the Pan American Sanitary Bureau. The other is at Tala in the Philippines and is a Philippines Government center supported by WHO and ICA. At the Jamaica center, since its inception early in 1958, approximately 140 persons from 33 countries have attended courses ranging from 8 to 12 weeks.

Financing and contributions of research projects.—A small, but important phase of the global assistance being given by ICA is the financing of a research project at the Communicable Disease Center Technical Development Laboratories of the U.S. Public Health Service in Savannah, Ga. Since the beginning of this project, this center has made a number of valuable contributions to the program: (1) development of specifications which insure that the insecticide water dispersible powders are of high quality; (2) improved the hand compression sprayer specifications from the home-garden type of sprayer to that of a rugged piece of application equipment meeting the specific requirements of residual house spraying; (3) development of alternate insecticides or anopheline control methods for use in areas having malaria vectors resistant to chlorinated hydrocarbon insecticide. This includes important contributions on the use of malathion as well as DDVP (recently developed organic phosphorus insecticide—0,0-dimethyl 2,2-dichlorovinyl phosphate).

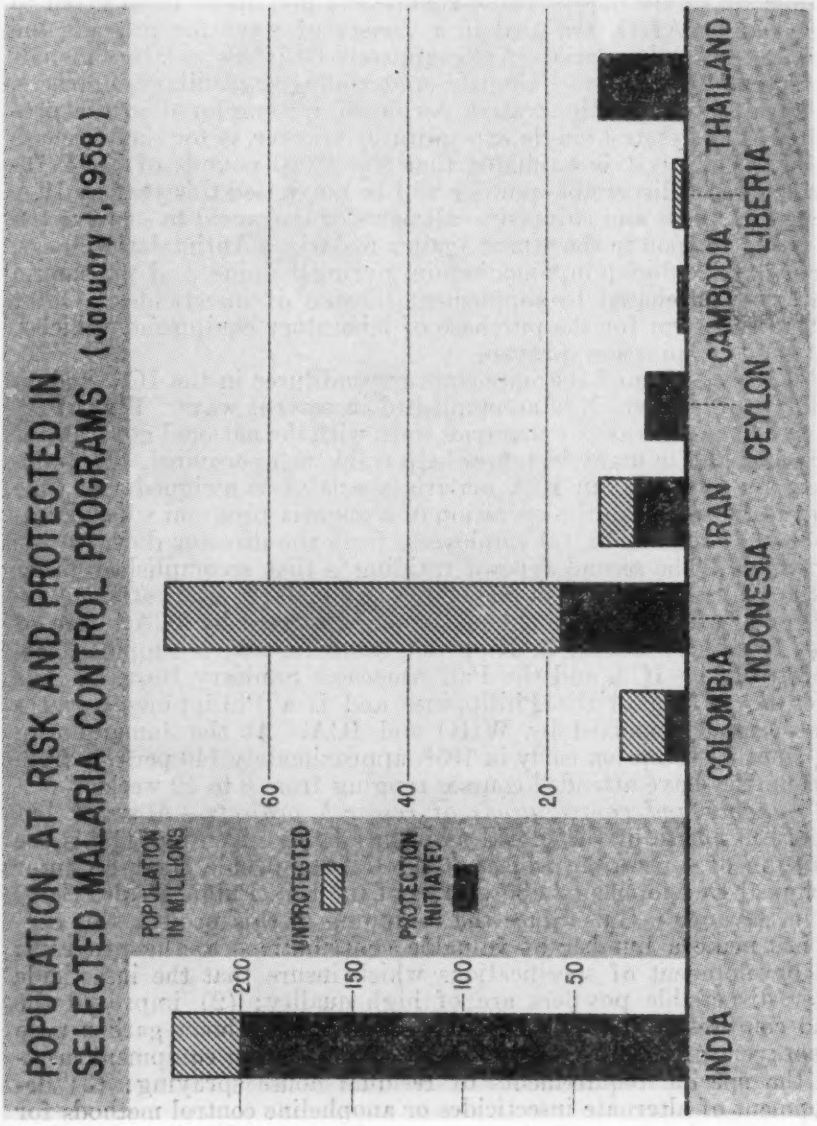
POPULATION AT RISK AND PROTECTED IN SELECTED MALARIA CONTROL PROGRAMS (January 1, 1958)
POPULATION IN MILLIONS
UNPROTECTED
PROTECTION INITIATED
200
150
100
50
60
40
20
INDIA
COLOMBIA
IRAN
CAMBODIA
THAILAND
INDONESIA
CEYLON
LIBERIA

FIGURE 18

TABLE II

POPULATION DATA FOR COUNTRIES RECEIVING ICA MALARIA ERADICATION PROGRAM SUPPORT

[Population in thousands]

	Total	Malarial areas	Malaria eradicated	Under survey	Presently sprayed	Not yet sprayed
Far East:						
Cambodia	5,000	1,000	0	0	947	53
Indonesia	84,000	75,000	0	0	10,952	64,048
Laos	3,000	2,000	0	0	388	1,612
Philippines	22,690	7,059	0	5,466	1,542	51
Taiwan	9,863	6,730	5,212	1,210	308	0
Thailand	21,076	[1] 12,385	0	4,552	7,833	0
Vietnam	12,100	[2] 5,142	0	0	0	[2] 5,142
Subtotal	157,729	109,316	5,212	11,228	21,970	70,906
Near East-South Asia:						
Ceylon	9,165	5,994	0	2,478	3,516	0
India	392,440	390,000	0	1,322	222,253	166,425
Iran	18,945	12,500	0	2,449	5,902	4,149
Iraq	6,558	3,800	0	1,253	2,547	0
Jordan	1,471	1,186	0	0	[3] 0	[3] 1,186
Nepal	8,700	4,171	0	0	180	3,991
Subtotal	437,279	417,651	0	7,502	234,398	175,751
Africa:						
Ethiopia	20,000	8,000	0	0	249	7,751
Liberia	1,250	1,250	0	0	160	1,090
Libya	1,118	86	0	0	0	86
Subtotal	22,368	9,336	0	0	409	8,927
Latin America:						
Bolivia	3,273	1,116	0	0	1,116	0
Brazil	61,268	32,173	0	0	0	32,173
Colombia	13,227	9,787	0	0	9,787	0
Ecuador	3,890	1,993	0	0	1,993	0
Guatemala	3,430	1,478	0	0	1,478	0
Honduras	1,770	1,311	0	0	1,311	0
Jamaica	1,594	1,296	0	0	871	425
Nicaragua	1,331	1,220	0	0	1,220	0
Paraguay	1,638	759	0	0	759	0
Subtotal	91,421	51,133	0	0	18,730	32,598
Grand total	708,797	587,436	5,212	18,730	275,312	288,182

[1] According to ICA information, an additional 8,000,000 persons are living in areas as yet unsurveyed which may therefore be malarial.

[2] According to ICA information, by October 1959, 1,000,000 houses will be sprayed (i.e., approximately 5,000,000 persons.)

[3] Applies to house spraying only. 428,000 were covered by antilarval operations.

The final product of the program is, of course, the actual accomplishments in the various countries. The population at risk and protected in representative malaria programs in January 1958 is shown in figure 18. At present ICA has projects in 25 countries of Latin America, Africa, and Asia. As of December 31, 1958, according to data prepared by WHO, 587,436,000 persons in these countries live in areas which are, or once were, malarial. Of these, 5,212,000 were living in areas with malaria eradicated, 18,730,000 were under surveillance, and an additional 275,312,000 were living in areas where the houses were being sprayed with residual insecticides. Approximately 288,182,000 were not receiving regular spray services as of the end of 1958. (See table II.)

Technical and administrative problems.—Although the data indicate excellent progress, there are yet many technical and administrative problems confronting these programs. Perhaps the most serious technical problem is the development of insecticide resistance in various anopheline species. It has been reported that six species of anophelines are resistant to DDT and its analogues; 18 are resistant to dieldrin, BHG and chlordane (A.W.A. Brown, 1959 Manuscript). Twenty-five million persons live in malarial areas where the mosquitoes are already resistant to both groups of insecticides. In these, alternate insecticides such as malathion are being tried, although antimalarial drugs can be utilized more fully when this happens. Despite these developments which demand immediate action, the great and lasting argument for eradication rather than control measures in the conquest of malaria is to be found in its long-range economic benefits as summarized in figure 19.

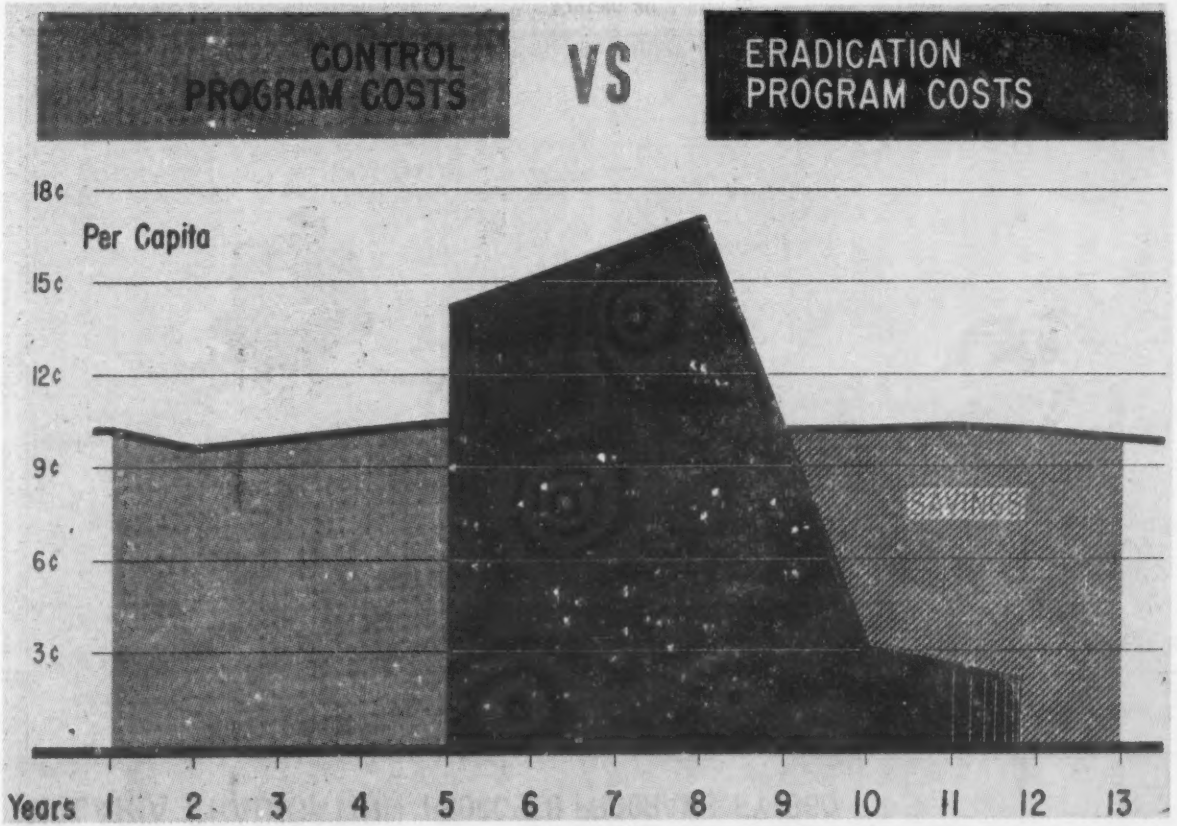
CONTROL
PROGRAM COSTS
VS
ERADICATION
PROGRAM COSTS
18¢
Per Capita
15¢
12¢
9¢
6¢
3¢
Years 1 2 3 4 5 6 7 8 9 10 11 12 13

FIGURE 19

MALARIA ERADICATION PROPOSED PROGRAMS, FY 1960
NEPAL
INDIA
CEYLON
THAILAND
CAMBODIA
VIETNAM
LAOS
TAIWAN
PHILIPPINES
INDONESIA
IRAQ
IRAN
AFGHAN
ETHIOPIA
SUDAN
LIBERIA
HAITI
JAMAICA
HONDURAS
GUATEMALA
COLOMBIA
BRAZIL
BOLIVIA
PARAGUAY

FIGURE 20

Cooperative program essential.—While the U.S. Government is the major contributor, this global effort must continue to be cooperative on the part of WHO, UNICEF, ICA, and the individual countries having malaria problems. No one organization alone can bring about malaria eradication. Proposed malaria eradication programs for fiscal year 1960 are shown in figure 20.

(See also excerpts from the report of a panel of malaria experts, appointed by ICA, as published in this volume, pp. 558 ff.)

(*b*) *Yaws*

Yaws, a disease common to tropical and subtropical countries, is caused by a spirochete which enters through a break in the skin. The disease is transmitted by contact with infected persons or articles. In advanced stages, the disease is characterized by open ulcers which penetrate muscle and bone, causing great disfiguration and destruction of tissue with resultant disability and suffering. For years, the yaws problem was relatively insoluble due to the fact that cure of the disease required a series of painful injections over a period of many weeks, and the general population did not return to complete the cycle of shots.

However, with the advent of inexpensive and readily available penicillin—of which only one injection was needed for cure—widespread campaigns for the control of yaws became both possible and practical.

In 1950, major yaws campaigns were undertaken, with ICA assistance, in both Colombia and Ecuador. Each country was divided into geographical areas, each under the jurisdiction of a Latin American physician. Five or six teams, consisting of two medical technicians, a mechanic and a pilot, operated under each physician. Each team was self-sufficient, having been supplied with a dugout canoe and an outboard motor, drugs, and camping necessities. Injections were given on a regular schedule, standardized checkup visits were made, and continuing records were maintained.

In Ecuador, the incidence of yaws has been reduced from 14,400 per 100,000 population in 1950 to less than 200 per 100,000 in 1958. In Colombia, during a single month in 1957, 10,870 persons were examined for yaws. About 1,700 cases were found and treated. Colombia has since discontinued mass treatment and is now concentrating on case finding and case treatment. In both countries, U.S. technical participation is no longer necessary, and the programs are entirely administered by the other governments.

(*c*) *Smallpox*

As public health organization increases in many countries of the world, another disease, smallpox, is on its way to eradication. Factors in this situation are not only effective medical means for eradicating the disease but also improved communications which enable medical personnel to move quickly to the scene of an outbreak. Improved public health organization guarantees sufficient personnel to carry out mass immunizations.

Bolivia has had the highest attack rate in the hemisphere, with twice the number of cases that Brazil had, although Brazil's population is 15 times that of Bolivia. In 1957, when a severe outbreak was reported from the city of Cochabamba, the joint United States-

Bolivian health servicio undertook emergency measures. After 4 days of preparation, 24 teams of medical students started out from house to house to vaccinate families; 5 teams of nurses worked at schools and factories; and clinics were set up at the health center, Red Cross headquarters, Government agencies, and industrial offices. The entire resident and transient population had been vaccinated by the close of a 7-day campaign—a total of 105,548 vaccinations.

In March 1958 mass vaccination was undertaken in La Paz. Original plans were for house visits. Instead, such large numbers of the population appeared at clinics and vaccination posts that plans had to be revised. The campaign was terminated after 10 days, with 367,863 persons vaccinated. An eradication campaign continued in 1958, with about 200,000 vaccinations each month. In 1957 there were 1,310 cases of smallpox; in the first half of 1958, only 193 cases. From July 1958 to June 1959 no further cases had been reported.

In East Pakistan a smallpox epidemic had by April 1958 resulted in 17,000 cases and 850 deaths. Concurrently cholera was raging in the Province, with thousands of cases and hundreds of deaths reported. Assistance was asked from the United States in combating these epidemics. Within 10 days vaccines and other emergency supplies were being flown to the scene. On April 29, a request was made for additional personnel. On May 7, a team of doctors and other health workers arrived by plane in Dacca, East Pakistan, from the U.S. Naval Medical Research Unit No. 2 on Taiwan; nine epidemiologists from the Communicable Disease Center, U.S. Public Health Service, arrived from the United States between May 12 and 16, and assistance was given in the development of adequate control measures.

In the Republic of Korea, in April and May 1957, a nationwide smallpox inoculation campaign was carried out for infants and preschool and primary school age groups. A million and a half inoculations were performed. This campaign, along with earlier ones, resulted in a drop of smallpox cases from 10,085 in 1949 to 1951 to only 5 in the first 9 months of 1958.

(*d*) *Trachoma*

An eye disease which causes blindness to millions of persons, particularly in the Middle East, trachoma can be treated with antibiotic ointment. Iran, with U.S. assistance, has organized teams to combat the disease. In 1958 in eight villages in Khuzistan, a southwestern province, 847 persons were examined; 608 had trachoma and 169 had other eye diseases. These cases were successfully treated.

In Libya a school program for trachoma treatment resulted in reducing incidence of the disease from 71 percent to 34 percent among schoolchildren in 1958. But one of the significant findings was that trachoma was an affliction of preschoolchildren and that schoolchildren with trachoma represented cases of relatively long standing. This pointed up the need for a community public health approach to the disease.

(*e*) *Tuberculosis*

Case finding is an important part of the campaign to fight tuberculosis. On Taiwan from 1951 through 1958, a total of 7,466,858 schoolchildren were tuberculin-tested or retested and 3,968,727 vaccinated or revaccinated. Emphasis which was placed on schoolchildren has

now shifted to infants and preschoolchildren, with about 60,000 tests and 35,000 vaccinations each month. The U.N. Children's Fund has given extensive support to this program. From September 1953 to the end of 1958, X-rays among civilian groups totaled 160,176; among organized military personnel, 523,586. The death rate from tuberculosis dropped from 285 per 100,000 in 1947 to 64.6 per 100,000 in 1957.

(*f*) *Poliomyelitis*

The speed with which improved health practices discovered in one country reach others in the world today is illustrated by experience with use of Salk vaccine against polio. Mass tests in the United States were held in 1954 and the results were announced on April 12, 1955. Vaccine was in short supply even in the United States for a while, but by March 1957 hundreds of children in Honduras were receiving polio vaccine. In October 1957, in the city of Concepcion, Chile, with the enthusiastic support of government, civic clubs, industry, labor, press, and radio, the joint United States-Chilean health organization carried out 8,223 inoculations of children in 7 days.

B. Environmental Sanitation

In the economically underdeveloped areas of the world, which include some two-thirds of the world's population, the normal daily environment is far from sanitary. Quite aside from aesthetic considerations, it is impossible to prevent the spread of communicable disease or to promote good health without first establishing habits of basic cleanliness. This includes health education, provision of potable water, disposal of sewage, food and milk sanitation, home sanitation, and the like. These activities have been a mainstay of ICA joint health programs since their inception in 1942. The most important single factor in basic sanitation is the provision of an adequate water supply, and virtually every country program puts major emphasis on this activity.

(*a*) *A plan for national community water supply programs to spearhead an attack on the leading health problem in the world's less developed areas*

Proposal in brief.—It has been determined, at the suggestion of the President, that the United States in collaboration with other nations, World Health Organization (WHO) and Pan American Health Organization (PAHO), spearhead a worldwide attack on the gastrointestinal diseases through the stimulation of cooperative national water supply programs. While program emphasis would be placed on meeting the needs of medium-size communities, it would also permit assistance to large city and rural village projects consistent with a nationwide approach. It is estimated that the typical program in any one country would result in the creation of a permanent indigenous "institution" capable of carrying on the job.

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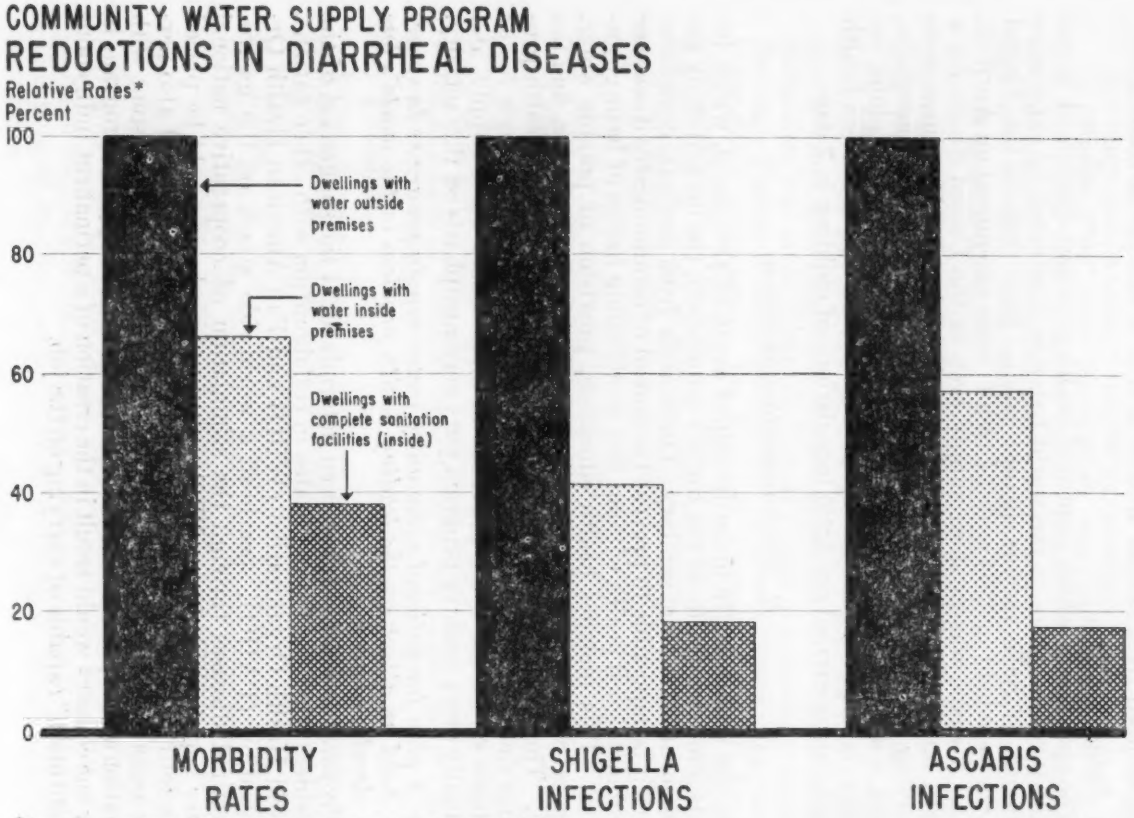
COMMUNITY WATER SUPPLY PROGRAM
REDUCTIONS IN DIARRHEAL DISEASES
Relative Rates*
Percent
100
80
60
40
20
0
Dwellings with water outside premises
Dwellings with water inside premises
Dwellings with complete sanitation facilities (inside)
MORBIDITY RATES
SHIGELLA INFECTIONS
ASCARIS INFECTIONS
*Experience of people living in dwellings with water outside the premises - 100%

FIGURE 21

FIRST FIVE PRINCIPAL CAUSES OF DEATH PER 100,000 POPULATION IN TEN COUNTRIES OF NORTH AMERICA, 1956

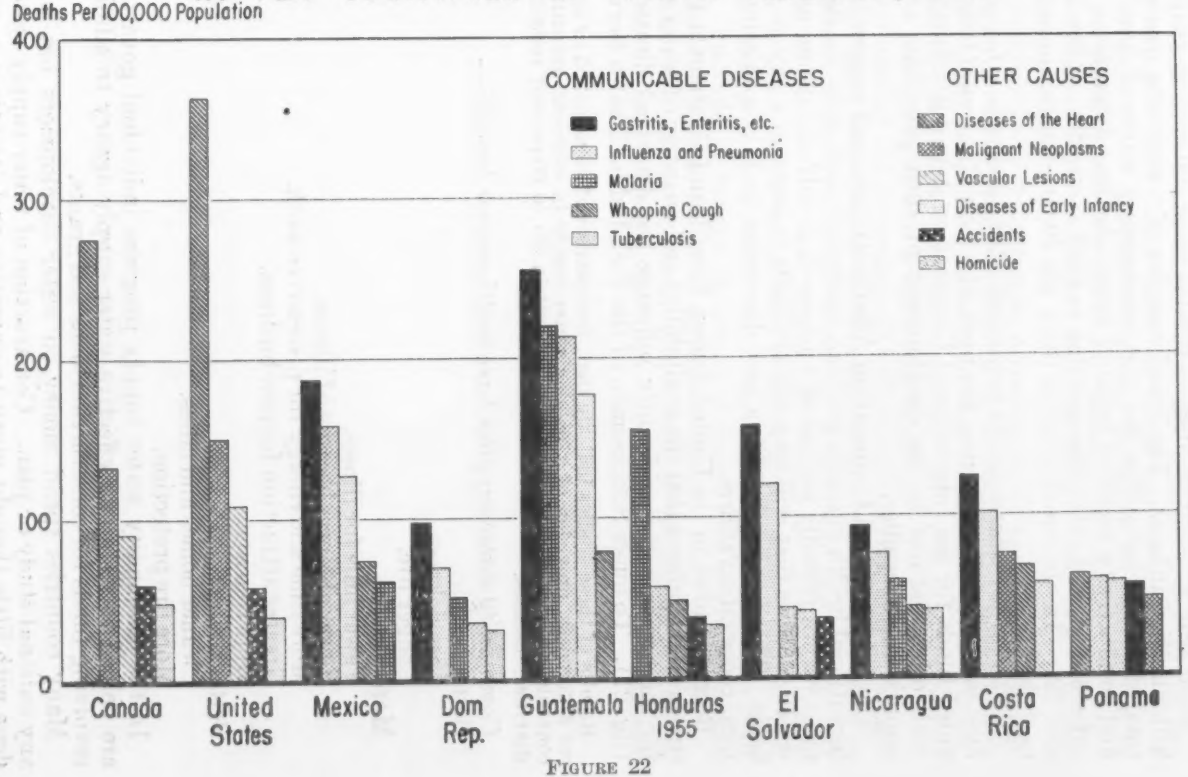

FIGURE 22

Need for program.—Safe water is one of the world's greatest needs. Adequate supplies in every community are required for health, for happiness, and for economic progress.

Each year waterborne diseases disable some 500 million people and kill 5 million infants. The broad complex of waterborne gastrointestinal diseases responsible for this unnecessary waste of human life and productivity includes typhoid fever, cholera, dysenteries, worm infestations, and other diseases due to poor sanitation. (See figs. 21 and 22.) In one country alone there are 20,000 deaths annually due to cholera.

Waterborne diseases can be prevented—the solution is safe water for human needs.—Recognizing the need, the 86th Congress (1959) provided funds for the International Cooperation Administration's work with other nations in the development of such programs as community water supplies.

The International Cooperation Administration and cooperating international health agencies promote, encourage, and assist the development within friendly nations of business-type self-sustaining national water supplies that will be made available to users on a pay-as-you-go basis. This approach adds a new dimension to ICA's existing technical cooperation efforts.

Recent studies in the United States, Brazil, and Guatemala furnish substantial evidence that the availability and quantity of water supply for the homes will significantly influence the diarrheal disease rates (fig. 21). To quote Schliessman of the U.S. Public Health Service:

Results of these studies indicate that, irrespective of ethnological or sociological differences, provision of a potable water supply in sufficient quantities and conveniently accessible to people will result in 30- to 60-percent reductions in diarrheal diseases.

Community water supplies have multipurpose benefits.—

Better health:

Less sickness.

Longer life.

More wealth:

Fewer bills for illness.

Fewer absences because of illness.

More time and energy for productive work.

Greater attraction for new business.

More tourists.

Better living:

Cleaner homes and cities.

More fire protection.

In the community water supply program individual governments are helped to set up an effective water supply agency to administer revolving funds for construction loans and grants.

Many countries spend money on water development but without any national study or plan. Construction of water supply systems is done with little thought given to operation and maintenance or payment for water used. National governments need help in giving attention to:

Surveys—to assess needs and feasibility;

Plans—to develop a comprehensive plan setting forth details of work to be done, time schedules, estimated costs, and training needs;

Education—to secure the understanding, support and active participation of the public;

Training—to prepare the necessary personnel;

Design and construction—to make detailed engineering designs and to start construction as funds become available;

Standards—to provide laboratory facilities for testing and to develop and enforce regulations to maintain quality;

Operations—to maintain the water supply system and collect water revenues.

The International Cooperation Administration and its predecessor agencies have had 17 years experience in the cooperative development of water supply projects in Latin America, and, in more recent years, in the Middle East and Far East countries. In 1959, ICA helped 31 countries develop rural and urban water supplies.

Background of the program.—For 17 years, the ICA and its predecessor agencies have helped to develop community water systems as an effective and highly popular attack on the group of gastrointestinal diseases, which are the most important worldwide causes of illness and death. Development of such systems at the same time has met other fundamental community water supply needs, especially in urban areas. Outstanding results have been obtained and much experience has been gained upon which an expanded program can be based.

In 1957 the Inter-American Committee of Presidential Representatives proposed such a program for the Western Hemisphere.

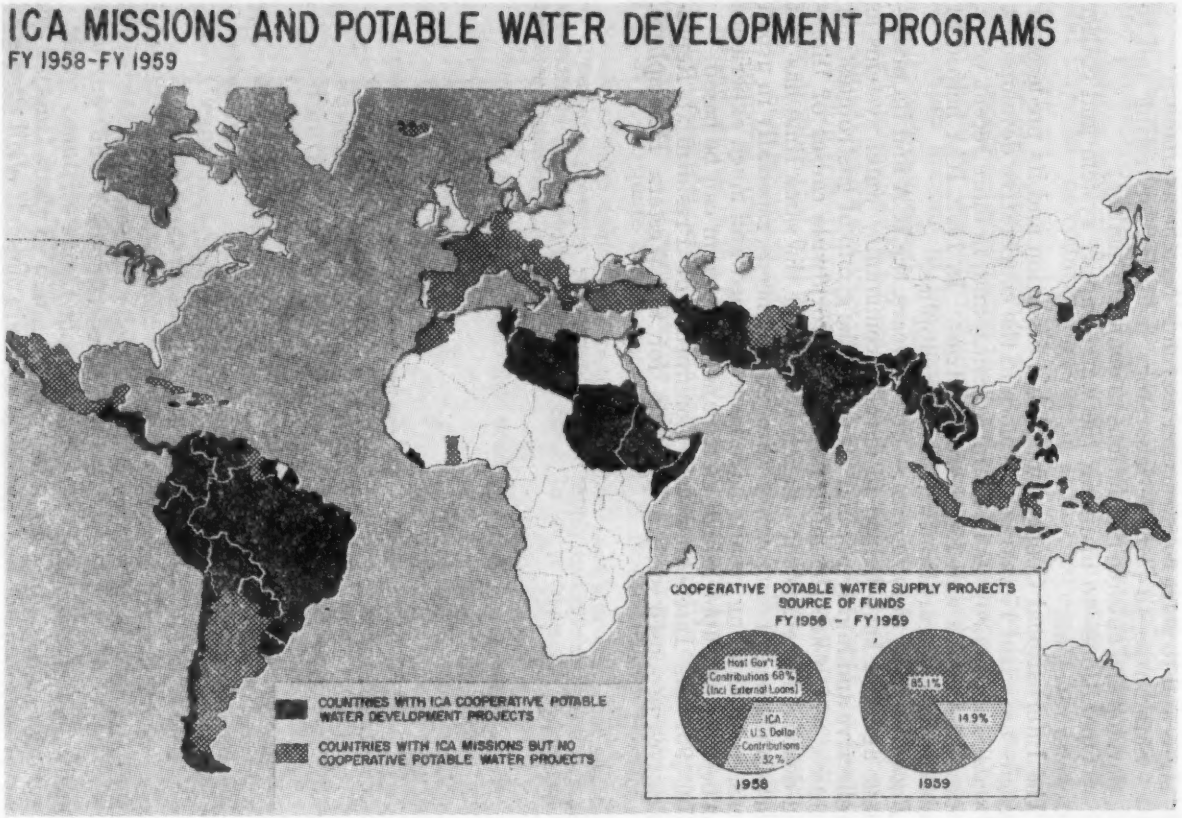
ICA MISSIONS AND POTABLE WATER DEVELOPMENT PROGRAMS
FY 1958-FY 1959
COUNTRIES WITH ICA COOPERATIVE POTABLE WATER DEVELOPMENT PROJECTS
COUNTRIES WITH ICA MISSIONS BUT NO COOPERATIVE POTABLE WATER PROJECTS
COOPERATIVE POTABLE WATER SUPPLY PROJECTS
SOURCE OF FUNDS
FY 1958 - FY 1959
Host Gov't Contributions 68% (Incl External Loans)
ICA U.S. Dollar Contributions 32%
1958
85.1%
14.9%
1959

FIGURE 23

This project was also considered of high priority by the International Development Advisory Board under Mr. Eric Johnston. In March 1958, Dr. L. E. Burney, Surgeon General of the U.S. Public Health Service, recommended such a program, along with others, to ICA as appropriate for early implementation. The 88 member nations represented at the WHO General Assembly meeting in Minneapolis in May 1958 resolved to favor a worldwide community water program. President Eisenhower, in his August 1958 speech to the U.N. General Assembly, indicated water shortage and disease as two major challenges to Near East development.

In June of 1958, a panel of top U.S. sanitary engineers was convened by ICA/Washington to study the water-supply problem in the less developed areas. Its report recommended the development of a detailed program for the promotion and stimulation of cooperative national water-supply programs. In line with this recommendation, 15 ICA and PHS experts, with long oversea field experience in environmental sanitation, have been developing the basic planning for a major worldwide effort in this field.

Four basic objectives.—The immediate objective of the program is to help cooperating governments to:

1. Designate or establish a water authority or other agency in the national governments which, with the assistance of ICA when requested, will plan and promote countrywide programs of community water supplies. If no appropriate agency exists, the country can request the technical cooperation from ICA or WHO as required to help organize and develop a staff for such an agency. (See fig. 23: where potable water development programs are located.)

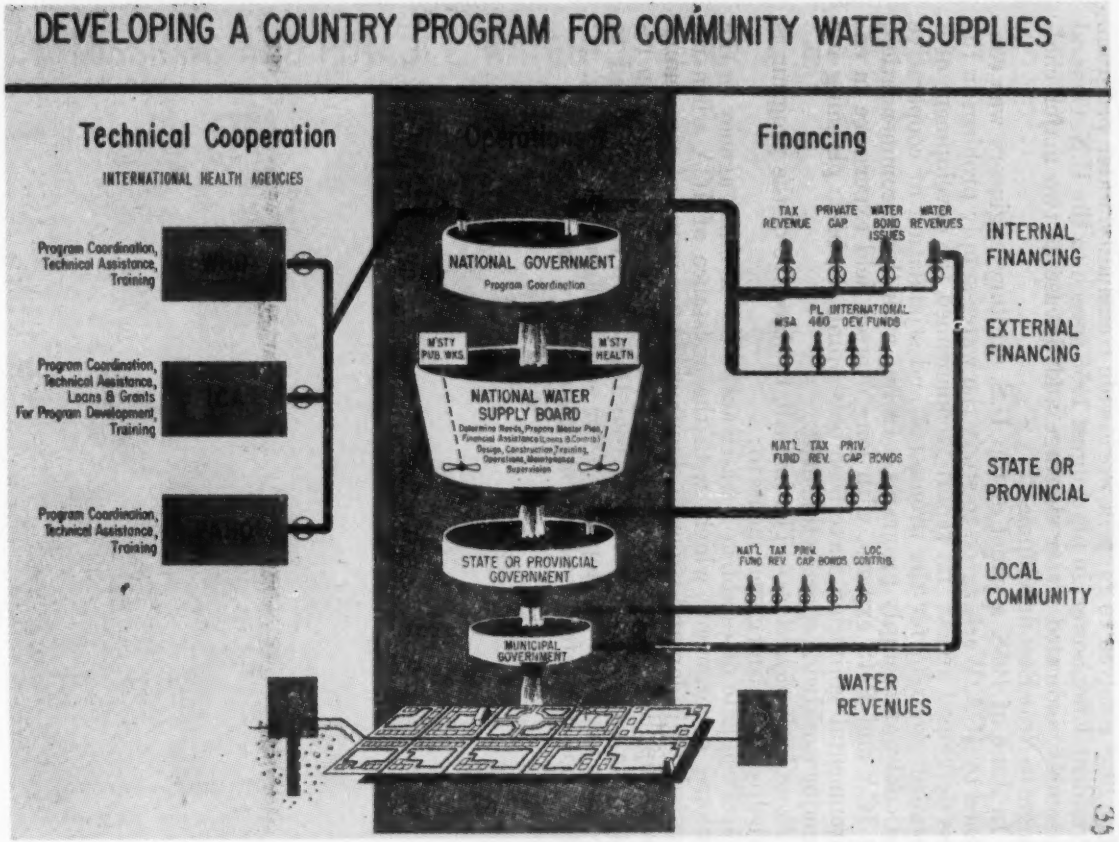
DEVELOPING A COUNTRY PROGRAM FOR COMMUNITY WATER SUPPLIES
Technical Cooperation
INTERNATIONAL HEALTH AGENCIES
Program Coordination, Technical Assistance, Training
Program Coordination, Technical Assistance, Loans & Grants For Program Development, Training
Program Coordination, Technical Assistance, Training
NATIONAL GOVERNMENT
Program Coordination
M'STY PUB. WKS
M'STY HEALTH
NATIONAL WATER SUPPLY BOARD
STATE OR PROVINCIAL GOVERNMENT
MUNICIPAL GOVERNMENT
Financing
TAX REVENUE
PRIVATE CAP
WATER BOND ISSUES
WATER REVENUES
INTERNATIONAL DEV. FUNDS
INTERNAL FINANCING
EXTERNAL FINANCING
STATE OR PROVINCIAL
LOCAL COMMUNITY
WATER REVENUES

FIGURE 24

2. Establish a national community water-supply fund from which loans or grants could be made for municipal projects which meet the required technical and fiscal standards (see fig. 24).

3. Train sufficient number of national technicians and securely establish national institutions to assure a continuing program based on sound planning as well as proper technical and fiscal practices in construction, operation, and maintenance.

4. Encourage, by providing loans to the extent possible, the construction of industrial facilities (for example, pipe production) within those countries where such industries would be economically feasible and desirable.

These functional objectives will, of course, be modified in application to conform to variations in organizational and administrative patterns in the different countries.

(*b*) *Some achievements in selected countries*

Environmental sanitation in India.—In 1952 the first U.S. adviser in public health engineering was provided to the Government of India. In 1954 an operational agreement was signed, setting up the Central Public Health Engineering Organization. This was directed by U.S. advisers until 1957 when the deputy director general (public health engineering) reported for duty. Under this organization, the national water supply and sanitation program was developed. As of June 1, 1959, 288 rural projects (50 percent grant) had been approved, covering a total of 9,879 villages; and 308 urban projects (Government of India loans) had been approved. When completed, these projects will cost an estimated $178.9 million, of which $80.6 million of Government of India funds plus unreported but substantial local funds have already been expended. Commodities have been provided by the United States at a total cost of $5.98 million, or 7.4 percent of the total expended.

Environmental sanitation in Brazil.—On July 15, 1957, the Servicio Especial de Saude Publica (SESP) in Brazil officially completed 15 years of public health work. The occasion was marked throughout the country with exhibits, festivities, and speeches. SESP's work affects chiefly the nonmetropolitan population, and it is best known for its community health programs and water supply projects. Health units operate in 144 communities, and about 1 million people a year receive some kind of direct service at SESP health units, while at least another million are reached in homes. The water supply program totals more than 600 projects, including those completed, under construction, or in the planning stages.

The Government of Brazil has been granting about $2.8 million annually to communities to assist them in building water supply systems, but a proposal has been made to devote this amount in the future to a revolving fund for loans which would permit financing 1,275 small water supply systems over a 15-year period. An important result of United States-Brazilian collaboration in SESP has been that young men are entering into sanitary engineering work as a profession. One authority, commenting on SESP accomplishment in this instance, said that the developing of a full-time sanitary engineering specialty in Brazil in a period of 15 years is "without precedent in the world."

Environmental sanitation in Thailand.—In Thailand in March 1957 the village of Na Ngoo was selected as a demonstration site for rural sanitation. This village had 49 families, with incomes of $30 to $40 a year. Long discussions were held with the villagers regarding the purpose of the demonstration, which would largely involve self-help. Cooperation came about gradually; five families took part in the first cleanup day, seven more families joined the next week, and in 10 weeks all families were taking part.

Cement and forms to make privy slabs were provided at cost (about $1) and even delayed payment was arranged. Within 3 months 19 sanitary privies had been constructed and within another month the total was 33. The village had been made neat and clean. Water buffalos, which had wandered at will, were in pens. Villagers, who formerly had to walk a mile to get water at an unsanitary source of supply, could now go to two village wells which were protected from pollution.

Environmental sanitation in Ecuador.—In Ecuador an intensive program in environmental sanitation is being carried on in many areas of the Republic in an attack on the principal cause of death—gastroenteritis and colitis—which accounts for more than 10,000 deaths annually. Thousands of latrines have been installed in the coastal zone. Potable water, unavailable in most communities before 1942, has been provided by the construction of about 100 sanitary wells. The program is being extended rapidly into the highlands in collaboration with municipal and provincial governments.

The development of potable water and sewerage has been the major public health activity of the cooperative health program since 1950. Systems have been planned for more than 50 cities and towns, and approximately 20 of these have been constructed. Water systems designed in 1958 will serve 125,000 people, and systems under construction when completed will benefit 215,000 inhabitants. Projects are financed in large part by local contributions through internal loans and by Export-Import Bank loans.

Environmental sanitation in Honduras.—Honduras is devoting a loan made under the mutual security program to water supply and sewerage systems in 29 communities. With local contributions the program will cost more than $2 million.

Environmental sanitation in Korea.—Since November 1958 in Korea 7,900 heavy-duty pumps have been delivered and are rapidly being installed in dug wells newly constructed or repaired with aid materials. Also, 4,000 light-duty pumps are being made available to persons participating in "self-help" well development programs.

Environmental sanitation in Venezuela.—In a group of 32 Venezuelan towns, averaging 2,200 inhabitants each, where rural aqueducts were constructed with U.S. assistance, cases of gastroenteritis in children under 2 years of age dropped 25 percent during a 3-year period, whereas cases in 40 similar towns without such programs increased by 34 percent. Gastroenteritis has for years been the leading killer in Venezuela, causing about 1 of every 6 deaths, or about 10,000 deaths a year.

C. Consultation on Operations of Health Facilities

Some achievements in selected countries.—Of direct, daily concern and service to the peoples of the newly developing countries are the public health facilities that carry on many of the activities of preventive medicine. These activities include health education, child care and advice to mothers, tuberculosis examination and treatment, treatment of venereal diseases, immunization against communicable diseases, and dental examination. Associated with health centers also, in many cases, are the sanitarians who examine the conditions of community health and suggest the means for improving them.

Taiwan health center program.—On Taiwan a health center program assisted by the United States has been instrumental in bringing medical services within reach of all inhabitants of rural areas, including many who live in remote mountain villages. Some 104 health stations were in existence when the program started in 1949, but nearly half of these existed in name only. The joint program helped to strengthen all the stations and to build many new ones. By 1957 there were 22 health centers, 391 health stations, 168 health rooms (in aboriginal areas), and 411 part-time health rooms.

Under the joint program, assistance has included medical supplies, equipment, and some grants for initial establishment of health centers and stations; but local governments and communities have raised about 10 times as much as the outside contributions.

Peru health center program.—In Peru the health cooperative (SCISP) operates in 7 health centers, 15 medical posts, and 23 health posts. It has three rural mobile units and operates three small hospitals, two tuberculosis dispensaries, and three maternal and child health centers. From July 1, 1957, through December 31, 1958, the SCISP had this record: 8,030 persons hospitalized, 117,068 new cases of communicable disease found and treated, 125,546 outpatient medical consultations given, 89,801 immunizations, 13,132 home visits by nurses, and 30,381 preschoolchildren and 28,921 schoolchildren attended.

Philippines expands rural health services.—In the Philippines the rural health services from 1954 to 1958 were expanded to a point where they were giving services to 17 million rural people. Personnel increased to 4,770 and 1,268 rural health units were operated. Equipment included 450 jeeps, 40 outboard motors to be used in boats for water transportation, 10 station wagons, and 790 refrigerators for storing vaccines. Eight hundred medical kits, furnished through U.S. aid, were placed in remote villages.

Iran program now nationwide.—In Iran prior to the joint United States-Iranian health program many parts of the country were without medical or public health services of any kind. The Public Health

Cooperative Organization eventually extended its activities over the entire nation and has since become the Department of Public Health in the Iranian Ministry of Health.

D. Training and Education

In newly developing countries, medical and public health personnel range in quality from the most primitive to the most competent. Regardless of quality, however, they are always in short supply. In the general area of the Near and Far East, Africa, and south and southeast Asia, the number of persons per physician ranges from 5,000 to over 20,000 compared to less than 1,000 inhabitants per physician for the United States and most of Western Europe.[23] Doctors, nurses, nurses' aids, midwives, health visitors, sanitation and laboratory personnel—all are urgently needed. To help bridge this hiatus between the need and the supply, the United States assists in enlarging or improving the curriculums of local medical schools, in developing schools for nurses or nurses' aids, or in providing on-the-job training for various kinds of health technicians. Most of this training takes place in the host country itself, but a number of technical and professional persons are trained in the United States or in a "third country" each year.

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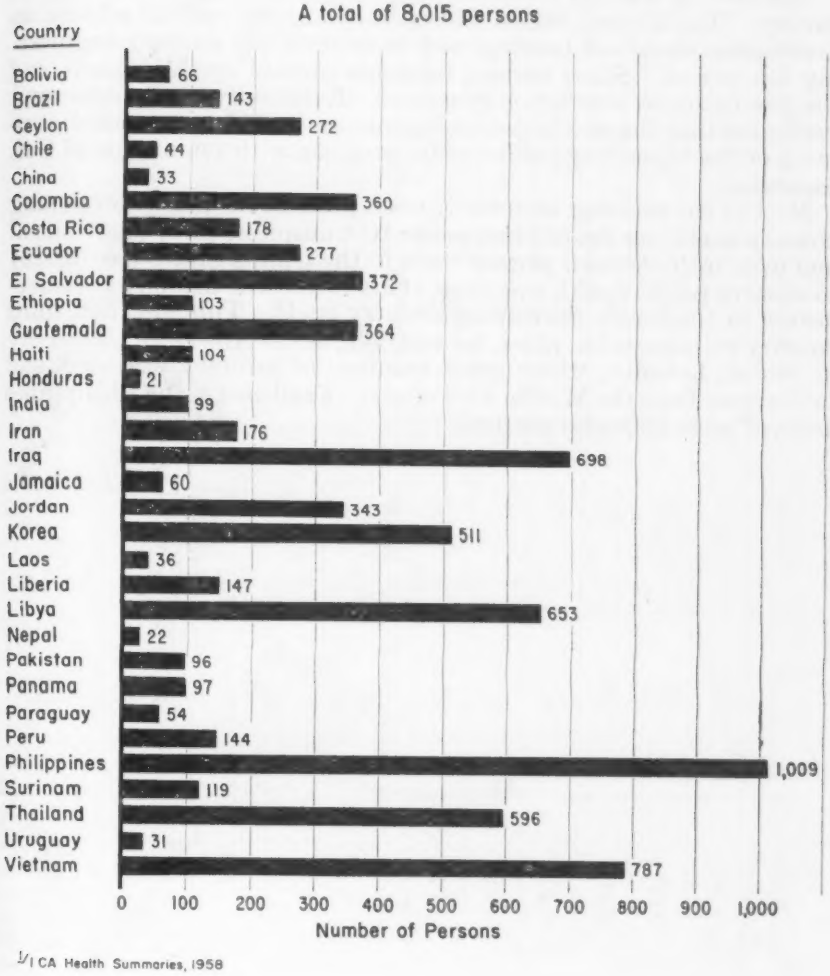
[23] Committee print, "The Status of World Health," Apr. 10, 1959.

FIGURE 25

INSERVICE TRAINING UNDER BILATERAL HEALTH PROGRAMS BY COUNTRY

1958[1/]

A total of 8,015 persons



1/ ICA Health Summaries, 1958

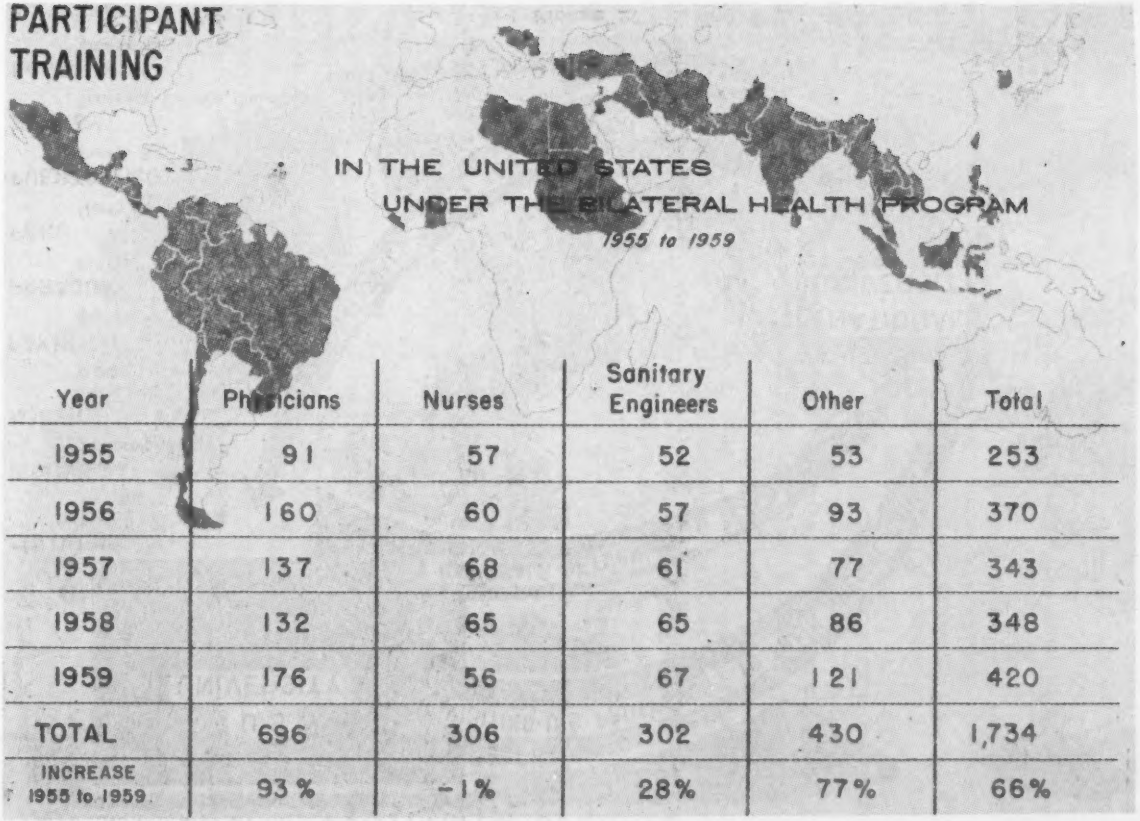
(*a*) *Background*

The problem of technical cooperation in the education of medical and public health personnel is to increase the numbers of the highly skilled and to train the many thousands who carry on the detailed activities of public health.

Doctors and nurses are necessary; so also are nurses' aids, hospital auxiliaries, midwives, visiting nurses, health visitors, sanitation personnel, employees of water and sewage plants, laboratory technicians, and hospital administrative staffs. Public health education must be extended in the public schools and in communities.

The devices used in technical cooperation are, therefore, of great variety. The United States assists in enlarging medical schools, in developing schools of nursing, and in establishing sanitary engineering instruction. Short courses, refresher courses, special schools, and the like figure in instruction programs. Eventually the facilities and personnel that the newly developing nation itself has are sufficient to carry on the expanding public health program with a minimum of U.S. assistance.

Most of the training necessarily takes place in the newly developing country itself (see fig. 25) but, under ICA auspices, many professional and technically trained persons come to the United States (see fig. 26) to observe public health practices. Others are sent to study at centers nearer to the newly developing country itself. This so-called third country training takes place, for example, at the American University in Beirut, Lebanon, where great numbers of sanitary engineers and sanitarians from the Middle East study. Facilities in the Philippines and in Puerto Rico also are used.



Year	Physicians	Nurses	Sanitary Engineers	Other	Total
1955	91	57	52	53	253
1956	160	60	57	93	370
1957	137	68	61	77	343
1958	132	65	65	86	348
1959	176	56	67	121	420
TOTAL	696	306	302	430	1,734
INCREASE 1955 to 1959	93%	-1%	28%	77%	66%

FIGURE 26

HOW UNIVERSITY CONTRACTS OPERATE
U.S. UNIVERSITY
VISITING U.S. PROFESSORS TO TRAIN SPECIAL CADRE
NATIONALS RETURNING TO TEACH
NATIONAL UNIVERSITY
NATIONALS TO U.S. FOR ADDITIONAL TRAINING
COLOMBIA
Yale-Harvard
INDONESIA
California (2)
KOREA
Minnesota
Indiana
PAKISTAN
Indiana
PARAGUAY
Buffalo
PERU
North Carolina
PUERTO RICO
Puerto Rico
TURKEY
Teachers' College, Columbia
COSTA RICA
Louisiana

FIGURE 27

(*b*) *ICA sponsored contracts with universities*

Over the years ICA has sponsored contracts with universities in the United States to work with institutions in the newly developing countries in educational fields related to public health (see fig. 27). One of these contracts has been with the University of California to assist the University of *Indonesia* at Djakarta in medical education.[24] At the time the contract began in 1954, Indonesia had a total of about 1,200 physicians for a population of 80 million—about one physician for each 66,000 persons. The United States has one physician for each 733 persons.

The University of California and the University of Indonesia worked for several months analyzing the educational problem and made recommendations to the Indonesian Government, which gave its approval, and a definite expansion program got underway. About 3 years were spent in developing the basic science departments of the University of Indonesia; 2 years have been spent in developing the clinical departments. The contract is now in its final stages.

Since 1954, the University of California has furnished about 12 staff members a year, and 22 Indonesian faculty members and other personnel have studied at the University of California. The Indonesian medical school used to graduate 20 to 30 physicians a year. Beginning in June 1959, it will graduate nearly 150 a year. Some of these trained under the program will go to other Indonesian medical schools to help enlarge their teaching programs.

An example of another kind of contract is that with the University of North Carolina and its School of Public Health to assist the National School of Engineering in *Peru* with its sanitary engineering courses. North Carolina has concentrated its efforts in six fields—(1) design, construction, and equipment of laboratories; (2) training of personnel in laboratory teaching; (3) curriculum planning and course content; (4) organization of field training; (5) development of short courses and special educational services; and (6) development of research and laboratory services.

The need for sanitary engineering in Peru is indicated by the fact that only about 20 percent of the people living in communities are served with water from public supplies. Of 30 of the larger cities of the country with public supplies, fewer than 10 are regarded as being served satisfactorily. The National School of Engineering in Peru was established in 1876 and has educated most of Peru's engineers. However, the first graduates in sanitary engineering in 1943 numbered only five, and the average per year until 1954 was about six. Since then the number of students has greatly increased and second-year students in 1958 numbered 32. Formerly most of the students came from Lima, but in 1957 there were 21 enrolled from 16 cities outside Lima.

Other university contracts in the health field include those with Tulane University for work in the schools of medicine in *Colombia*, Indiana University with the Basic Medical Science Institute in *Pakistan*, and the University of Buffalo with the National University of *Paraguay* in medical education.

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[24] A listing of university contracts which have been made in conjunction with bilateral health programs from 1954 to 1960 is given in appendix B, p. 505.

(*c*) *United States helps to establish institutions and training centers*

Many institutions for instruction in the health field have been established with the advice of an individual or several U.S. technicians. In *Ethiopia*, establishment of the Public Health College and Training Center at Gondar came about through collaboration of the United States with the Government of Ethiopia, the World Health Organization, and the U.N. Children's Fund. This institution was designed to train Ethiopians to staff local health departments, with 3-year courses for health officers, 2-year courses for community nurses, and 1-year courses for sanitarians. The project was begun in 1953, and in August 1958 the first graduating class consisted of 20 health officers, 15 community nurses, and 12 sanitarians. These graduates were then assigned to local health services in other parts of Ethiopia. At the same time the next class, consisting of 29 health officers, 13 community nurses, and 19 sanitarians, entered upon their 1-year internship at training health centers in the province where the college was located.

In *Jordan* the Ministry of Health wanted a good basic school of nursing and requested assistance of the United States. American nurse education consultants were assigned in January 1953, and in November of that year the Jordan School of Nursing, which provides a 3-year professional course, opened in a rented building with 13 students. A building has since been constructed and equipped with classrooms, library, offices, and living accommodations for 60 students. Three classes have been graduated and as of June 1959 three classes totaling 49 students were enrolled. All 27 graduates in the first three classes received government appointments upon graduation.

In order to help *Vietnam* improve the health of the people living in rural areas, the U.S. mission in Saigon has assisted in the training of health workers, who in turn help supervise several thousand village health workers. Certain selected medicines are provided for village first-aid stations and other rural health facilities.

Various nurse-training schools in Vietnam have been in operation for many years, but teaching of both theory and practical work was done by physicians and the modern concept of patient care by nurses was not taught. The graduates, as a result, were more doctors' assistants than trained nurses. The National School of Nursing, established with U.S. assistance in 1953, included in its curriculum nursing arts and other subjects taught by nurses rather than physicians.

In 1957 the Health and Nursing Technician School, offering a 3-year curriculum including public health, was inaugurated in the cities of Saigon and Hue. Admissions have averaged 175 a year. This school replaced the National School of Nursing and Health Technician School. The National School of Nursing in Saigon and Hue, with a 2-year curriculum, closed in September 1958 with a total of 289 graduates.

In *Indonesia* the Bandung School of Nurse Teachers was established and developed with U.S. cooperation. By 1957 more than 30 qualified teachers of nursing had been graduated and 8 had received additional training in the United States. These returned to important posts in the Bandung School itself. The Indonesian Ministry of Health has assumed complete responsibility for the school, without foreign assistance, since July 1, 1956.

FIGURE 28

NURSING PARTICIPANTS TRAINED IN UNITED STATES UNDER BILATERAL HEALTH PROGRAMS, BY YEAR AND TYPE OF TRAINING, 1955–59

Countries	1955			1956			1957			1958			1959			Total
	PHN	NE	HNS	PHN	NE	HNS	PHN	NE	HNS	PHN	NE	HNS	PHN	NE	HNS	
Far East:																
Cambodia							1	1			2				3	7
China	2	1	2	1	1	1	1		4	1		1		1	1	17
Indonesia		3			3	1		2		1						10
Korea								2					2			4
Philippine Islands	3	1	2	4	2	4	4		6				4			30
Thailand	4	3	3	1	14	1	1	5	2	3	5	2		4		48
Vietnam		2	1	1				1	1		2			6		14
Near East and South Asia:																
Ceylon										1						1
India		2	3			1							1	1		8
Iran	3	1			1				1					1	1	8
Iraq								3		2	1			3		9
Israel				1		2										3
Jordan					1						2	2				5
Lebanon									1							1
Nepal										1						1
Pakistan											2			1		3
Turkey											9			4		13
Africa:																
Ethiopia										1	1					2
Liberia			2				1	2					1			6
Libya																0
Latin America:																
Bolivia				1			1			2			2			6
Brazil				2			2		1	1	1		1		3	11
Chile	1		2				1	1	1		1	2			2	11
Colombia			1		1			1								3
Costa Rica	3						6			3		4				16
Ecuador	1			2				1	1			1		1	2	9
El Salvador						2	2			1		1	4			10
Guatemala									1						1	2
Haiti	5			1			1			1						8
Honduras				2							1	1	1	1	1	7
Jamaica				1						1						2
Mexico	1					2										3
Nicaragua																0
Panama		2			5			2	1			1		1	1	13
Paraguay		1		1				2								4
Peru							3						1			4
Uruguay			1	1	1			1	1	2		1				8
Total	23	16	17	19	29	14	24	23	22	21	27	16	17	24	15	307

Code:
PHN—Public health nursing.
NE—Nursing education.
HNS—Hospital nursing service.

(*d*) *Training center in Thailand*

In *Thailand* the Cholburi Health Training and Demonstration Center was established in 1952 by the Thailand Department of Public Health with U.S. assistance. At this center, in a village about 50 miles from Bangkok, more than 1,700 health department employees have received special training. Plans are underway also for the construction, with U.S. help, of a new medical and nursing school at Chiengmai, Thailand's second largest city. It is scheduled to open in 1960. Thailand has some 3,000 licensed physicians, of whom two-thirds are in Bangkok. Many more doctors are needed for rural areas, and it is for this reason the new school is being established.

(*e*) *Nursing*

Since 1942, over 300 nurses from the United States have served in the development of bilateral health programs in 35 countries. Cur-

rently, ICA is cooperating with nursing programs in 28 countries. Of this total, 13 are located in *Latin America*, 9 in the *Near East, South Asia*, and *Africa*, and 6 in the *Far East*.

U.S. nursing cooperation varies widely. Generally, the host countries have been concerned with establishing nursing services, schools of nursing, and activities related to nursing associations.

The training of leaders in the nursing profession has been an integral part of all programs. Between 1955 and 1959, 306 nurses received training in the United States. (See fig. 28.) Similarly, a large number of nurses are trained for leadership positions in regional institutions such as the American University at Beirut, *Lebanon*.

Selected nursing projects have been undertaken through university contracts. For example, the University of Buffalo is assisting in all phases of the development of the Andres Barbero School of Nursing in Asuncion, *Paraguay*. Through a contract with Teachers College, Columbia University, assistance is given to establishing the Florence Nightingale College of Nursing in Istanbul, *Turkey*.

Maintaining a school of nursing as a permanent institution is imperative to provide well-qualified nurses for the various health services. In 24 countries of the world, ICA has helped to establish such permanent nursing institutions. In several countries, U.S. cooperation consists of help to upgrade the standards of nursing schools, to improve administrative techniques, and to prepare a qualified faculty. For example, about 16 nurses are trained each year as "Sister Tutors" in the Post Graduate College of Nursing in Karāchi, *Pakistan*. The graduates of this college are practicing in various schools and hospitals throughout the country. In *Brazil*, the University of São Paulo, with the help of U.S. technicians, has developed a graduate course in public health nursing in the School of Hygiene. Within the past year, a course in nursing supervision was initiated in *Taiwan* through an ICA project. This will serve all Chinese-speaking nurses. In some countries, ICA has assisted the host country in establishing their first school of nursing. This was true in Asmara, *Eritrea*, where after a 3-year training program, first national graduate nurses are practicing in the general hospital and the public health service.

Due to the limited number of "professional" nurses, "subprofessional" personnel must take on considerable responsibilities for nursing care. This is by far the largest group of nursing personnel in most of the economically underdeveloped countries. In *Nepal*, through a project to improve the public health services, the first group ever to be engaged in community nursing completed a course preparing for service in the Rapti Valley. These young women work in the homes and clinics in this area which never before had the benefit of maternal and child health services. In *Ecuador*, in the last 2 years, a total of over 200 "auxiliaries" were trained for hospital services.

At all levels in the development of nursing services, emphasis has been placed on the improvement of administrative skills. For example, nursing cooperation has been brought into the organization of national, state, and local organizations. At the local level, much progress has been made in demonstration pilot projects in health centers and hospitals. In *Iran*, public health nursing services have recently been established in all 10 of the country's geographical subdivisions (ostans). A cadre of personnel is being prepared for each

of the ostan capitals. In this country where modern nursing techniques are less than 10 years old, it is significant that current legislative proposals give civil service status to nurses.

Although activities in hospital nursing have always been included in selected programs, greater emphasis is given to this area of nursing in more recent years. Seven countries have active projects for the development or improvement of hospital nursing services. These include consultation to the country's Health Ministry in such matters as administrative planning, helping to determine adequate standards, and personnel needs. Others are concerned with a single hospital or the development of a unit such as the recovery ward. In several of the rural services, such as those in *Brazil* and *Peru*, a plan of total family care was developed in the joint hospital-health center.

E. Consultation on Construction, Remodeling, and Rehabilitation of Health Facilities

The number of hospitals, clinics, laboratories, and other facilities in the newly developing countries is often extremely limited, and even those in existence may not be operated in accordance with minimum standards. Assistance of the United States has been given in rehabilitating existing facilities and in planning new ones.

In *Guatemala City* a new general hospital is being completed. The agreement for U.S. assistance to the project dates back to 1942, and at the suggestion of former President Ubico, the new institution was named Hospital Roosevelt. For some years, because of an unfavorable political situation in Guatemala, the project was at a standstill. When the present government came into power, the task of completing Hospital Roosevelt was undertaken, and the U.S. Government authorized $1.5 million in economic aid funds during 1955 and 1956, which was matched with an equal amount by the Guatemalan Government.

Today Hospital Roosevelt is a nucleus hospital in a countrywide hospital system. It provides inservice training in cooperation with the National School of Nursing, which forms part of the project. An Institution of Nutrition has been completed and placed in operation adjacent to the hospital. Buildings in the hospital group itself were designed by a New York firm that has designed similar centers in the United States, the Middle East, and Asia. Included are the new general hospital, maternity and pediatrics buildings, nurses' school and residence, library, and other buildings.

In *Libya* another project assisted by the United States called for rehabilitation of existing hospitals and the gradual establishment of a coordinated hospital and medical-service facilities system. Involved are the large general hospitals in Tripoli and Benghazi and the smaller provincial hospital in Sebha. These hospital centers are supported by remodeled and reequipped district hospitals as Misurata, Zavia, and Tobruk. The district hospitals in turn are supported by a system of first aid stations located in strategic areas throughout each province. In addition, major health centers have been established at Zavia, Misurata, Garain, and Barce. A long-range program calls for development of certain special hospitals such as tuberculosis sanitariums and provincial mental hospitals.

F. Medical Research Projects

It is the general policy of the Office of Public Health of ICA to cooperate in basic research only in those cases where new research is essentially needed for the solution of specific problems. As a result of this policy, research projects have been few in number. The following medical research projects are current and are illustrative of the type of this activity in which the Office of Public Health of ICA is active:

1. Communicable disease center (CDC) research project—malaria eradication program.—An interagency agreement with the Communicable Disease Center of the U.S. Public Health Service was initiated in 1954. The agreement places major emphasis on the development of specifications for insecticides purchased by ICA, development and testing of insecticide application equipment, development of a more economical method for packaging insecticides, and the development of new nonresistant insecticides.

Some accomplishments are—

(*a*) Present operations insure that all insecticides shipped abroad have acceptable physical properties and meet specifications.

(*b*) Application equipment has been improved from a poorly constructed garden-type sprayer to a precision insecticide sprayer.

(*c*) Two new promising insecticides, malathion and DDVP, have been developed which will control mosquitoes that have developed resistance to DDT and dieldrin. DDVP studies indicate possible use of this material as a residual fumigant, which may reduce the need for house spraying in some areas.

2. Trypanosomiasis contract.—A formal contract between ICA and the American Foundation for Tropical Medicine was signed and made effective June 19, 1958, to extend activities in Liberia until December 31, 1959, with $201,000 being funded for the entire period. At present, negotiations are underway to extend the contract for an additional year.

The principal objectives are—

(*a*) Determination of incidence, distribution, and status of trypanosomiasis (sleeping sickness) by systematic physical and laboratory examination of village residents primarily of the western province of Liberia.

(*b*) Treatment of all infections as soon as cases are detected.

(*c*) Determine prevalence, density, behavior, and infection rates of tsetse flies coincident with surveys for parasites.

(*d*) On the basis of information obtained by these surveys and other necessary studies, develop practical control methods.

(*e*) As methodology is developed and proved in operation, devise definite plans for long-range control programs.

During the first year of research under this contract, reports indicate the establishment of excellent laboratory facilities and the training of 70 Liberian nationals to assist with the contract obligations.

3. SEATO cholera project.—This is a program of basic medical research approved by the South East Asia Treaty Organization in May 1959, in an agreement with the United States. Purpose of the program is to enable American scientists to help their Asian colleagues in cholera research.

The United States has allocated $400,000, a part of the mutual security appropriations from the President's fund for Asian development.

The project involves the establishment of a research laboratory in Dacca, East Pakistan, to be closely linked with research laboratories and institutions of other countries. Research activities will include epidemiological studies and bacteriological studies, and since cholera must be differentiated from other diarrheal diseases, studies of the type, distribution, and prevalence of these other diseases.

Provision will be made for training Asian citizens in the United States and in the field laboratory.

A team of six prominent American physicians visited various Asian countries in August 1959, to work out the details with the interested countries.

G. Other Health Activities

The wide range of public health development in the United States makes it possible for this country to supply, on request, the services of technicians in many specialized fields. Two such fields are those of vital statistics and industrial health.

Vital statistics are basic to any public health system, but in many countries doctors, until recently, have not certified to any central agency the causes of death or other information. During the past century this was true also in many parts of the United States.

Peru, until several years ago, was a country virtually without statistical information on hospital care, communicable disease, and vital statistics. After 3 years of supervision by the U.S.-Peruvian health servicio, adequate statistics are now being provided for proper administration and planning of the public health program.

Industrial health measures have become increasingly important to the United States as it has become the industrial leader of the world. And much of the pioneer work in this field has been done in this country. Industrial health measures also are accompanying industrial development abroad.

In Colombia, the Industrial Hygiene Service had a U.S. director while it was being organized. It now has a Colombian director and subdirector, both trained in the United States under ICA sponsorship. The U.S. technician acted as consultant until his assignment terminated in 1959. In one recent year 328 Colombian plants were studied and recommendations made and carried out to improve working conditions for 24,000 workers. Two Colombian engineers and four physicians are receiving special training in the industrial health field in the United States.

H. International Assistance in Health Emergencies

In recent years the United States, by virtue of a special contingency fund established under the mutual security program, has been able to demonstrate quickly the humanitarian concern of the American people for others in distress by providing relief to the victims of natural disasters, such as floods, earthquakes, and hurricanes. Under ICA auspices, efforts have been made to mitigate suffering arising from floods in the Danube Valley, in Pakistan, Indonesia, and Iraq; from

hurricanes and typhoons in the Caribbean area and the Western Pacific; from earthquakes in the Middle East; and from disease epidemics in Argentina, South Asia, and the Far East. Recent emergency health programs undertaken under ICA auspices are shown in figure 29.

FAST ACTION MAKES FRIENDS ABROAD
International Assistance in Health Emergencies
EAST PAKISTAN SMALLPOX AND CHOLERA EPIDEMIC
The ICA Mission in Pakistan reported an epidemic outbreak of smallpox and cholera on April 13, 1958, and endorsed a Pakistani request for air shipment of vaccine and other medical supplies. The first batch of materials arrived in Dacca on April 22. On the same day, nine experienced epidemiologists from the U.S. Public Health Service were offered to the Pakistan government. On May 2 the Pakistan government accepted the offer, and in exactly one week the first U.S. doctors left Washington for Dacca, followed by six others a few days later.
HEPATITIS IN CEYLON
On July 30, 1956, the ICA Mission in Ceylon received an urgent request from the Ministry of Health for 1,000cc of gamma globulin to arrest an epidemic of infectious hepatitis which already had caused two deaths at a girls' college. The gamma globulin was delivered at the Colombo Airport within six days.
CHOLERA EPIDEMIC IN THAILAND
On May 29, 1958, the ICA Mission in Thailand requested immediate assistance in obtaining vaccine and other supplies to combat a serious epidemic of cholera. The first shipment of vaccine left Manila on May 31. On June 5 the Thai Government announced that 1,500 cases had been identified, and on June 7 more supplies were requested. An Air Force plane left the U.S. on June 10, with additional ICA-financed vaccine, Red Cross supplies, and other materials purchased by the Thai Government, arriving in Bangkok on June 14.

FIGURE 29

Section V. U.S. Organization for Bilateral and Multilateral Technical Cooperation in Health

A. General Patterns of Operation—Bilateral, Multilateral

U.S. sponsored and supported international health programs are increasing in scope and breadth at the present time, as indicated by the gradual increase in funds allocated for these purposes. The increasing U.S. participation in bilateral and multilateral health programs for the past 10 years is shown in figure 4. Both the International Cooperation Administration (ICA) and the Public Health Service (PHS) have major responsibilities in the international health objectives of the U.S. Government, in general consultation with the Department of State, and each of the two agencies has responsibility to cooperate with and support the other in the attainment of these objectives. Generally, the ICA represents the United States in bilateral health activities, while the PHS has traditionally represented the Government in multilateral health matters. (See special report entitled "The Public Health Service in International Health" as No. 6 of this series.) The character of U.S. Government participation in bilateral and multilateral programs is shown in the succeeding chart.

Under the bilateral pattern as shown in figure 30, the United States, through the ICA, cooperates directly with the health authorities of other governments in the development and operation of jointly financed health programs. Some bilateral health programs involve only the loan of technicians and demonstration materials; others provide for the transfer of quantities of supplies and equipment. Still others provide for long-range collaboration on the development and extension of a whole spectrum of health activities and facilities designed to strengthen the overall host country health services.

Under the multilateral pattern, contributions from the resources of the world's nations are pooled for the general benefit. Multilateral health and health-related programs are administered by agencies of the United Nations family, such as the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), or the Food and Agriculture Organization (FAO). These programs are of three basic types: technical assistance of an advisory or demonstration character, the establishment of worldwide standards or procedures, and facilitating the interchange and review of public health and medical knowledge and experience.

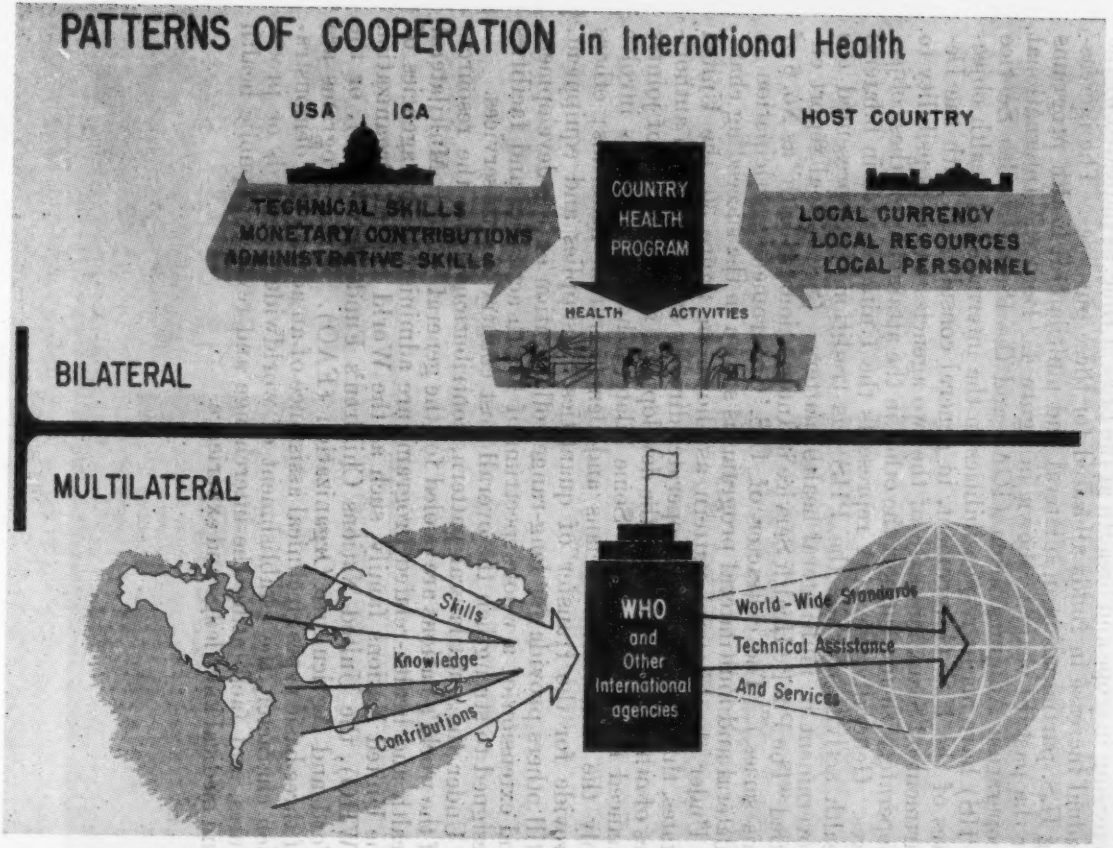
PATTERNS OF COOPERATION in International Health
USA
ICA
HOST COUNTRY
TECHNICAL SKILLS
MONETARY CONTRIBUTIONS
ADMINISTRATIVE SKILLS
COUNTRY HEALTH PROGRAM
LOCAL CURRENCY
LOCAL RESOURCES
LOCAL PERSONNEL
HEALTH ACTIVITIES
BILATERAL
MULTILATERAL
Skills
Knowledge
Contributions
WHO and Other International agencies
World-Wide Standards
Technical Assistance
And Services

FIGURE 30

B. Interagency Cooperation

(a) Purpose—To avoid duplication and coordinate programs

The United States is a member of two well-organized and highly effective international health organizations, the World Health Organization (WHO) and the Pan-American Health Organization (PAHO). Each has a highly active program of technical assistance. Techniques to promote cooperation and to avoid duplication of activities have been worked out by WHO, PAHO, and ICA. In Washington, informal staff meetings are held frequently with PAHO and ICA staff members, and with WHO staff located elsewhere, as frequently as travel permits. ICA technicians are regularly invited by the Department of State to serve on U.S. delegations to the controlling bodies of international organizations, providing another effective area of callaboration. In the field, both bilateral and multilateral organizations encourage the formation of informal coordinating groups under the leadership of host government officials.

(b) Organizational relationships in the United States

Within the United States, ICA has important organizational relationships with the Public Health Service of the Department of Health, Education, and Welfare. Approximately half of the technical field staff needed in the health programs abroad, including many in top leadership positions, are detailed to ICA by the Public Health Service (see fig. 7). The Service also makes available to ICA other farflung facilities within the United States, such as mobilizing the Nation's health resources to provide such other assistance as technical consultation on public health problems, facilities for the development and testing of insecticides, field and laboratory training of foreign health personnel in the identification and control of disease vectors, and emergency assistance of various kinds.

Day-by-day operational contact with the Public Health Service is maintained through the Division of International Health (formerly in the Bureau of State Services), which became a part of the Office of the Surgeon General on November 1, 1959. Personnel of this Division are constantly available to advise and assist ICA in international health matters, and to help mobilize other units within the Service to assist in the solution of health problems. The International Education and Exchange Branch of the Division of General Health Services (PHS) has the responsibility for arranging the educational programs of foreign participants in the ICA training program, and in the medical and scientific exchange programs developing between the United States and other countries. (This branch was, until November 1959, a part of the Division of International Health.) Services from the Division of International Health, as well as for the placement of participants, are funded by ICA through an interagency agreement.

(c) U.S. foundations and voluntary agencies are important resources

The foundations and voluntary agencies of the United States are also important resources in the worldwide health programs of ICA. Foremost among these are the Rockefeller Foundation and the W. K. Kellogg Foundation. In the field of physician and nurse training, as well as in others, these organizations have given real leadership to the international health movement. The ICA professional health staff

maintains frequent working contacts with the highly qualified staffs of both foundations and with others in the field.

U.S. voluntary agencies are principally concerned with strengthening, encouraging, and supporting local medical groups in other countries to help them provide essential medical care to their own communities. To this end, these agencies generally provide (1) drugs, medical supplies and equipment, food, and vitamins to specific hospitals and clinics; (2) American medical staff for their own local hospitals and clinics; and (3) training for local medical personnel.

Two of the newest international health activities are Medico (medical international cooperation) and HOPE (Health Opportunity for People Everywhere, one of the medical phases of the people-to-people program). ICA health technicians will be working closely with these two organizations as their programs develop.

The American Hospital Association has made its skill and resources available to provide leadership in hospital seminars and training programs in Latin America, and the program is now being expanded to worldwide proportions. Universities, especially medical and nursing schools and schools of public health, have participated widely in such programs. The University of California in Indonesia, Tulane University in Colombia, the University of Buffalo in Paraguay, and Indiana University in Pakistan are only a few examples. The University of Puerto Rico and Harvard University are operating specially organized training courses aimed specifically at the needs of foreign students in special fields.

(d) Coordination of governmental and nongovernmental health programs

In the United States, coordination of governmental and nongovernmental health programs is achieved through the Inter-Departmental Committee on International Health and through the ICA Advisory Committee on Voluntary Foreign Aid in Washington, and the American Council of Voluntary Agencies for Foreign Service, Inc., a private organization in New York. Recently a technical assistance clearinghouse was established by mutual agreement between these two agencies and ICA to facilitate the exchange of information on this subject. Since the early 1950's there has been an increased utilization of voluntary agency effort by ICA through the use of subsidies, of surplus U.S. food commodities which have been made available to other countries under Public Law 480, and of contracts with private organizations for specific health-related activities in specific countries.

The ICA Advisory Committee keeps the Director of ICA informed concerning the relationships of ICA with governmental and voluntary agencies in the field of foreign relief and rehabilitation, and serves as the point of contact in ICA for those agencies wishing to register as cooperating agencies in these programs. To register, the voluntary agency must have an effective foreign aid program which is neither political nor propagandistic, and have a record of stability and efficiency. Registered agencies are eligible for certain benefits, among which are: Participation in the ocean freight subsidy program administered by ICA, and donations of U.S. surplus foods made available to registered agencies for distribution to needy persons overseas. Voluntary and nonprofit organizations involved in technical cooperation health programs abroad, and those registered with the ICA Advisory Committee are listed in appendix H.

APPENDIX A

INTERNATIONAL COOPERATION ADMINISTRATION

Functional Statement—Office of Public Health (O/PH)

I. General

The Office of Public Health is responsible for: (1) formulation of technical policies and objectives for guidance in the development and execution of regional and country programs; (2) technical review and approval of programs and projects; (3) necessary ICA/W action to implement approved projects, within established priorities; and (4) evaluation of progress in project implementation and toward technical program objectives. The Office includes: the Office of the Director; Near East, South Asia, and Far East Division; the Latin America, Africa, and Europe Division; the Field Staffing Division; and the Technical Resources Division.

II. Office of the Director

The Director reports to the Deputy Director for Operations (DD/O) and supervises and coordinates the operations of the Office, including the maintenance of necessary intra-agency and external liaison and relationships.

III. Division Functions

A. Formulate policies, objectives, and methods of approach for ICA activities within the functional field of public health,[25] for guidance in program development and execution.

B. Provide technical review and evaluation of public health segments of country programs; recommend staffing patterns required to implement these programs; and review overall country programs from point of view of objectives and relation of public health activity to other programs.

C. Provide technical review of proposed projects in the field of public health for substantive content and technical feasibility; recommend approval, modification or disapproval of projects to regional offices.

D. In consultation with the regional offices, determine action necessary for implementation of each project, either directly by ICA or through contract with universities or other organizations. Projects may be implemented by training foreign nationals, sending experts to assist a country, providing technical information and advice or providing medical and engineering supplies and scientific equipment. Follow through to assure the project is implemented as agreed.

E. In connection with the provision of public health technicians, under delegation of the Director of Personnel, the office staff is responsible for locating and recruiting qualified public health personnel through its professional resources and contacts; determine technical qualifications required for positions and review and approve technical qualifications of candidates prior to nomination; arrange for their appointment as direct-hire employees or as commissioned officers on detail to ICA from the Public Health Service or other U.S. Government health services; an aspect of the recruitment activity is the planning and designing of public health exhibits which are utilized at meetings of professional groups such as American Public Health Association, National League of Nursing, etc.

F. Initiate and coordinate with the contract office the expedition of public health contract negotiations; provide administrative and technical support to contractor as required; review and evaluate project implementation and progress by contractor.

G. Provide general technical supervision, consultation, and guidance to ICA health technicians assigned overseas, including orientation of technicians prior to departure for oversea assignments; determine need for, and recommend refresher training for selected ICA public health personnel.

H. Provide professional and technical guidelines to the regional offices and USOM's with regard to the training and further education of foreign nationals

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[25] Public health is defined as "The art and science of preventing disease, prolonging life, and promoting physical and mental efficiency through organized community effort." Examples of activities include the following: Public health administration, public health nursing, sanitary engineering (water, sewage disposal, environmental sanitation), nutrition, health education, rural and urban public health programs, occupational health, education of professional and subprofessional public health and health care personnel, communicable disease control, hospital planning and administration, biostatistics, and assistance to institutions of higher learning for health personnel.

in public health and related fields; review and approve requests for the training of individual participants; and, with the assistance of Public Health Service, evaluate the effectiveness of professional training provided for such participants in terms of developing the professional skills needed in their countries.

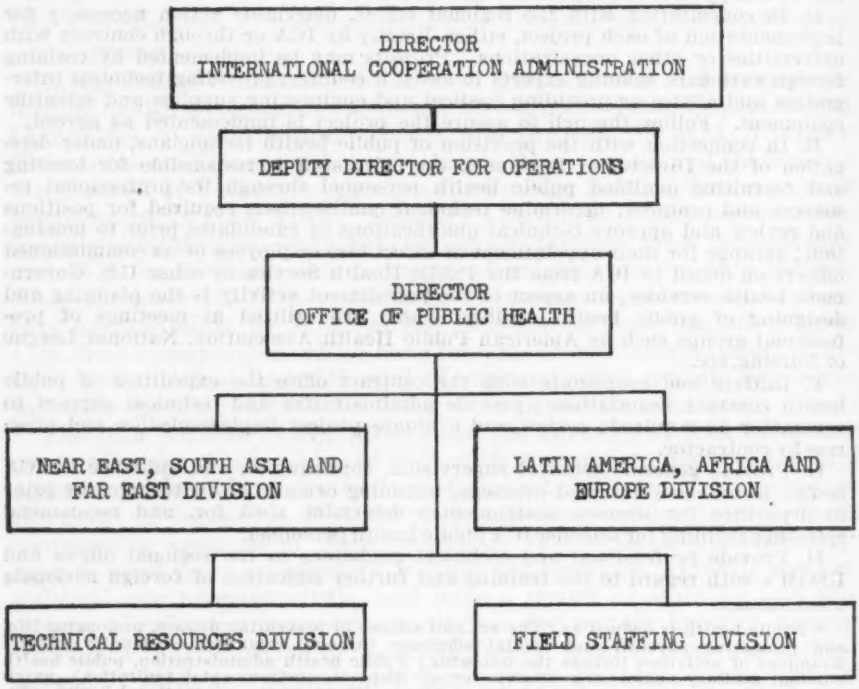
I. Process all requests from USOM's for medical supplies and equipment; determine adequacy of and render technical guidance in the review of commodity specifications; authorize procurement and followup on the actual procurement of commodities until delivery is made to the participating country; advise ICA missions regarding commercial availability of and new developments in technical materials used in public health programs; encourage development of new sources of supply and utilization of substitute supplies or equipment that would lend themselves more effectively or economically to accomplishing the objectives of ICA programs.

J. In conjunction with the missions and country desks, evaluate public health programs as they relate to annual country and regional programs.

K. Maintain central files of technical and program records of public health projects; prepare statistical and narrative analyses of technical public health data reported from the field for transmittal back to field technicians and U.S. professional groups, and for utilization in internal and Congressional justification of the public health programs; represent ICA Office of Public Health at professional meetings and conferences.

L. Serve as the professional point of contact in ICA with the World Health Organization, Pan American Sanitary Bureau, and the United Nations Children's Fund (UNICEF) in coordinating ICA health activities with those of multilateral agencies; maintain professional liaison with the Public Health Service and other U.S. Government agencies, as well a nongovernment and voluntary health agencies, U.S. medical and public health associations and foundations, medical schools and industrial medical institutions, to promote effective working relations and utilize their resources in providing technical support to USOM's in public health work.

These functions are performed through the organization charted below:



APPENDIX B

UNIVERSITY CONTRACTS UNDER THE BILATERAL HEALTH PROGRAM, 1954–1960 [1] AND OTHER CONTRACTS

Country	Contracting university	Subject	Date initiated	Termination date	Funds	Number of U.S. personnel	Remarks
Colombia	Tulane	Medical education—original contract 2 years, extension 3 years.	Dec. 1, 1955	May 31, 1961	$123,500 [2] 182,000	1 full time (field coordinator); 4 rotating professors each year (short term about 3 months each).	To provide assistance to the cooperating country for the purpose of assisting various facilities of medicine in Colombia University in the field of medical education.
	Harvard	Nutrition	February 1959	February 1960	25,000	Approximately 4 short-term consultants.	To assist in development of a nutrition education program.
Indonesia	California (Indonesia).	Medical education	July 1, 1954	June 30, 1960	1,899,000	Approximately 14 short-term consultants.	To assist in development of a medical faculty in University of Indonesia.
	California (Airlangga).	do	July 8, 1959	July 8, 1961	1,500,000	Approximately 6 to 8 short-term consultants.	To assist University of Airlangga in improving medical teaching methods.
Korea	Minnesota	Broad contract including medical education and nursing services.	Sept. 28, 1954	Sept. 30, 1961	[3]	Approximately 2 short-term consultants.	To assist in improvement of medical education and nursing services at University of Seoul.
	Indiana	Nursing education	Sept. 24, 1959	Sept. 24, 1962	118,500	Approximately 3 short-term consultants.	Nursing.
Pakistan	do	Assistance to BMSI, medical education.	June 27, 1957	June 27, 1960	1,824,728	Approximately 10 short-term consultants.	Medical education assistance in establishment of postgraduate college of basic medical sciences to prepare teachers for Pakistan medical schools.
Paraguay	Buffalo	Medical education, nursing.	November 1956	March 1960	[4] 150,000	2 full time; 1 or 2 consultants each year (servicio contract).	To improve medical education, working on possible extension in university and nursing education in Dr. Andres Barbero School of Nursing.
Peru	North Carolina	Sanitary engineering	September 1954	May 31, 1960	201,227	7 over entire period	To strengthen School of Engineering, National University.
Puerto Rico	Puerto Rico	Regular public health training facilities.	June 30, 1954	May 1, 1962	[5] 540,000	Flat rate charged for each participant.	To provide training in public health in the Spanish language.
Turkey	Teachers College of Columbia University.	Nursing education	July 1, 1959	July 1, 1962	53,300	3	Nursing.
Costa Rica	Louisiana	Develop School of Medicine at University of Costa Rica.	Aug. 4, 1959	July 31, 1962	91,606	5 or 6 approximately (first 2 years a campus coordinator and second part-time at LSU and short-term consultants at TCR, 3d year professors will be sent).	To assist in the development of the School of Medicine as a faculty of the University of Costa Rica.
Regional	American University of Beirut.	Training	June 1954	June 29, 1960	5,424,819		Training of nationals from Middle East, South Asia, and Africa in public health preventive medicine, nursing, pharmacy, engineering, agriculture, public, and business administration.

[1] ICA/Washington.
[2] Extension of 3 years.
[3] Health a part of total financing—not funded separately.
[4] Extension of 4 months with additiona $25,000 funding.
[5] Estimated.

OTHER CONTRACTS, 1952–1960

Country	Contractor	Subject	Date initiated	Termination date	Funds	Number of U.S. personnel	Remarks
Haiti	Metcalf & Eddy	Water system survey	June 8, 1959	On completion of work.	$110,000		To make survey and prepare final plan for a water system for Port-au-Prince.
Iran	Iran Foundation	Training in medical skills.	Mar. 7, 1955	June 30, 1959	408,000		To provide training in various medical skills through facilities of Memazee Hospital and provide teaching and instruction to Shiraz Faculty of Medicine.
Liberia	American Foundation for Tropical Medicine.	Rural health	June 19, 1958	Dec. 31, 1959	201,000	1 American and 3 3d-country nationals.	Establishment of a rural health demonstration center program in connection with the investigation of the trypanosomiasis problem.
Pakistan	Commonwealth of Massachusetts.	General public health advising service.	Nov. 13, 1952	June 30, 1960	697,392		Provide consultants in general public health advisory services and fields of administration, environmental sanitation, nursing, and health education.
	Ralph M. Parsons	Dacca-Chittagong water supply and sewerage disposal design.	July 1, 1958	On completion of work.	675,000		Engineering services contract for design of water and sewage disposal system.
Panama	10 contractors	Water supply system	1958 [1]	Varied duration	621,718		To install extension of water supply system and sewage collection for Panama City.
Costa Rica	Gordon Freison	Costa Rica hospital plan	March 1956	May 1958 completion.	200,000		Servicio contract.
Latin America (regional)	American Hospital Association		June 1954	December 1957 completion.	150,000		
Regional	Harvard Regional Nutrition		June 1955	June 1958 completion.	75,000		
	Florida State Board of Health (work order No. 1, Uruguay)		September 1954	September 1957 completion.			

[1] First contract in December 1960.

APPENDIX C

O/PH PERSONNEL ABROAD SHOWN ON "ROSTER OF HEALTH PERSONNEL" DATED MAY 1959

	PHS-R	PHS	Contract hire	Direct hire	Total
Nurses	34	5	4	25	68
Sanitary engineers and sanitarians	20	3	5	27	55
Well drillers				5	5
Physicians	12	10	8	21	51
Entomologists, malariologists and other malaria personnel [1]	11	3		8	22
Health educators	12			16	28
Business managers, administrative assistants, program analysts, etc	1		1	12	14
Industrial hygiene engineers and other engineers		1		4	5
Hospital administrative advisers	1	1		7	9
Public Health representatives and advisers	3			10	13
Statisticians				6	6
Architects				2	2
Others (laboratory technicians, dental and nutrition advisers, etc.)	3	3	17	21	44
Subtotal	97	26	35	164	322
ICA/W					36
Total					358

[1] Sanitary engineers listed as "malaria" personnel were included as sanitary engineers in the above breakdown.

APPENDIX D

ICA POSITIONS ABROAD BY FIELD [1]

Agriculture	970
Industry and mining	387
Transportation	322
Labor	46
Health and sanitation	390
Education	448
Public safety	115
Community development	83
Housing	29
Participant (training)	80
Communications media	100
Procurement and supply (Ind.)	43
Public administration	159
Mission directors—Control and administration	1,530
Total	4,711

[1] As of June 30, 1959—does not include contract personnel or ICA/Washington.

APPENDIX E

HEALTH PERSONNEL ABROAD IN ICA MISSIONS

Analysis of vacancies as of Nov. 16, 1959: [1]

Vacancies	88
No candidates	52
Candidates being processed	36
Of the 52 for which we have no candidates:	
Candidates recruited and declined before processing completed; actively recruiting at the present time	19
Candidates recruited; not accepted; actively recruiting	26
Unable to recruit interested candidates; actively recruiting	23
Negotiations being carried on by ICA	23
Received in past 2 months; actively recruiting	6
Reactivated vacancy; candidate being considered	0

[1] FSD/O/PH.

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Appendix F

CONCLUSIONS CONCERNING THE EVALUATION OF BILATERAL TECHNICAL COOPERATIVE ACTION IN HEALTH

I. *Need for Evaluation*

A. Joint evaluation of bilateral cooperative health programs is necessary and serves the following important purposes:

1. Measures the effectiveness or lack of effectiveness of the program.
2. Determines the cost of the program to date, and whether the expenditures are justifiable in terms of money, time, and personnel.
3. Serves as an aid for program and budget planning.
4. Determines if the program is following its intended course.
5. Reveals if the program is being properly administered.
6. Misunderstandings or misconceptions are revealed while still remediable.
7. Serves to maintain official and public faith and support for and in the program.
8. Promotes mutual trust and better working relationships between participating agencies.
9. Provides a basis for reorientation or modification as indicated by deviation from the master health plan or by changing environmental conditions.
10. Provides a means for introducing new technical concepts and points of view.
11. Increases the alertness and objectivity of the program staff.

B. Due to the distinctive features of bilateral technical cooperative programs, their evaluation is based on certain somewhat unique criteria such as:

1. Acceptability, absorptive capacity, economic feasibility.
2. Catalytic potential of the program.
3. Possibility that the host government can take over the program.
4. Prospect of continuity of the program after transfer to the host government.

Evaluation reports should be made to and used by the host government and the cooperating agency. Publication should be jointly approved.

II. *Type of Evaluation*

All evaluations should be constructive and productive. The type of evaluation utilized at a particular time will vary with the program. Self evaluation should be continuous. Special projects should be evaluated periodically. The total program should be evaluated as necessary. An appraisal should also be made to determine whether the individual projects are consistent with the master health plan of the country. The type of evaluation should be such that effect on and reception by the public can be measured.

An evaluation may include the following phases:

1. Administration.
2. Personnel.
3. Fiscal.
4. Statistics and records.
5. Technical. For example, systematic statistically sound evaluation studies of certain projects may be done. Such studies include adequate baselines and statistical controls where indicated and can be of interdisciplinary nature where appropriate.

Responsibility for followup on the implementation of recommendations of evaluations should be assigned to a person of commission. Periodic checks should be made to assure the enactment of these recommendations, and any publications should be jointly approved.

III. *Participants in program evaluations*

The preestablished purpose of the evaluation will determine those called on to participate in it. Under certain circumstances, self-evaluation is sufficient. Occasion may warrant the formal convening of a commission composed of representatives from the participating agencies. Consideration may also be given to the appropriateness of including a disinterested party or having the entire evaluation done by an outside agency. Careful attention should be given to the selection of the evaluators.

Controlling legal statutes will dictate certain types of evaluations. A joint commission of representatives of the participating agencies should determine the composition of the evaluating body. Performance of these functions should be

anticipated and provision for their accomplishment made in the project agreement. Financial support should be recognized as a necessary and legitimate expenditure and included in the budget.

APPENDIX G

COMPENSATION OF HEALTH PERSONNEL WITH ICA

Positions in the technical assistance missions of the ICA are classified on the basis of descriptions of duties and by use of the general procedures and standards used throughout the civilian service of the Government. Thus, the salary payable for each position is determined by the ICA grade to which the position is allocated by the position classification staff in the ICA Division of Personnel.

Under authority of section 527 of the Mutual Security Act of 1954 (Public Law 665, 83d Cong.), Public Health Service officers assigned to these positions are paid under ICA scales rather than under provisions of the Career Incentive Act, which establishes pay and allowances for members of the uniformed services.

A majority of health chief or health division positions in the ICA missions are classified in FSR 2–3 or ICA 3–4 grades which carry a salary range of $11,600, $13,640, $13,860, $14,850. Following a recent ruling of the Civil Service Commission, medical officers are paid at the top rate for the grade. This ruling was based on a finding by the Commission that medical officers are in short supply and that added pay is required as a recruitment incentive, a ruling applicable to medical officer positions throughout the Government.

Chief nurse and chief sanitary engineer positions in the missions usually fall in grades FSR 3–4, depending on evaluation of the difficulty and responsibility of each position. The ranges for these grades are FSR–3, $11,660–$13,640; ICA–4, $11,485–$12,650; and ICA–5, $9,900–$11,165.

Normally a person newly assigned to one of these positions is paid at the minimum rate of the applicable salary range and receives a one-step salary increase annually.

In addition to basic salary, each oversea staff member receives, when applicable:

Post differential—0 to 25 percent of basic salary, as determined by Department of State based on hardship classification of post to which assigned.

Cost-of-living allowance—$0 to $2,965, depending on post and salary and dependency status, to compensate for cost of living at post above Washington, D.C., levels as determined by Department of State for each post.

Housing allowance—$600 to $4,000, depending on post, salary, and dependency status. Designed to cover reasonable cost of quarters if not Government furnished. Rates established by the Department of State.

Education allowance—$0 to $1,800 per child in grades 1 through 12. Rates set for each post by Department of State to compensate for added cost above that for public school education in the United States for as nearly an equal education as possible.

APPENDIX H

VOLUNTARY AND NONPROFIT ORGANIZATIONS INVOLVED IN TECHNICAL COOPERATION HEALTH PROGRAMS ABROAD, 1959

Agricultural Missions, Inc.
150 Fifth Avenue
New York, N.Y.
(Community development, agriculture, health, rural credit programs)

[1a] Aid Refugee Chinese Intellectuals, Inc.
1790 Broadway,
New York, N.Y.
(Housing, medical, self-help services, and employment advice)

[1] Increases to these salaries were granted by the Congress as of July 1, 1960.
[1a] Registered with the ICA Advisory Committee on Voluntary Foreign Aid.

[1] American Bureau for Medical Aid to China, Inc.
1790 Broadway,
New York, N.Y.
(Medical care and training programs in Taiwan)

[1] American Jewish Joint Distribution Committee
3 East 54th Street,
New York, N.Y.
(Health, education, and welfare programs)

American National Red Cross
National Headquarters
17th Street, D and E, NW.
Washington, D.C.
(Health, welfare programs, and exchange services)

[1] American Relief for Poland
1200 North Ashland Avenue
Chicago, Ill.
(Medical supplies to Poland)

[1] Assemblies of God—Foreign Service Committee
160 Fifth Avenue
New York, N.Y.
(Hospitals)

[1] Catholic Relief Service—National Catholic Welfare Conference
350 Fifth Avenue
New York, N.Y.
(Health, education, welfare—cooperatives and low-cost housing)

[1] Christian Children's Fund, Inc.
China Building
Richmond, Va.
(Health, education, and staff training programs)

[1] Church World Services, Inc.
215 Fourth Avenue
New York, N.Y.
(Health, education, agriculture, and welfare programs)

[1] Congregational Christian Service Committee, Inc.
110 East 29th Street
New York, N.Y.
(Education and health services)

[1] Cooperative for American Relief Everywhere, Inc. (CARE)
660 First Avenue
New York, N.Y.
(Agricultural, carpentry tools, plows, apprentice and resettlement kits—technical and scientific books)

Ford Foundation
477 Madison Avenue
New York, N.Y.
(Rural leadership training; educational and exchange programs)

[1] Foster Parents' Plan, Inc.
352 Fourth Avenue
New York, N.Y.
(Health and education services to children)

[1] Hadassah
65 East 52d Street
New York, N.Y.
(Health and welfare services in Israel)

International Catholic Auxiliaries
1103 North Dearborn Street
Chicago, Ill.
(Home economics, health, and education programs)

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[1] Registered with the ICA Avisory Committee on Voluntary Foreign Aid.

[1] Iran Foundation
350 Fifth Avenue
New York, N.Y.
(Medical care and training programs)

Kiyosato Educational Experiment Project (KEEP)
2720 North Greenview Avenue
Chicago, Ill.
(Agriculture, vocational education, and health programs)

[1] Little House of Saint Pantaleon
1001 North 47th Street
Philadelphia, Pa.
(Medical supplies)

[1] Lutheran World Relief
50 Madison Avenue
New York, N.Y.
(Health, welfare, and education programs)

Maryknoll Sisters
Maryknoll Post Office, Maryknoll, N.Y.
(Health, education, and welfare services)

[1] MEDICO (Medical International Cooperation)
Division of International Rescue Committee, Inc.
255 Fourth Avenue
New York, N.Y.
(Medical care programs)

[1] Mennonite Central Committee
Akron, Pa.
(Health, welfare, agriculture, and community development programs)

National Catholic Rural Life Conference
3801 Grand Avenue
Des Moines, Iowa
(Agriculture, health, welfare, credit, and community development programs)

[1] Pestalozzi Foundation of America, Inc.
41 East 57th Street
New York, N.Y.
(Health and welfare services to children)

Rockefeller Foundation
49 West 49th Street
New York, N.Y.
(Medical, educational, and agricultural research)

[1] Save the Children Federation
Westport Avenue and Dry Hill Road
Norwalk, Conn.
(Educational, health, welfare, and community services to children)

[1] Seventh-Day Adventist Welfare Service
6840 Eastern Avenue
Washington, D.C.
(Medical, education, and welfare programs)

[1] Unitarian Service Committee
9 Park Street
Boston, Mass.
(Education, health, and welfare programs)

United HIAS Service
425 Lafayette Street
New York, N.Y.
(Medical examinations)

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[1] Registered with the ICA Avisory Committee on Voluntary Foreign Aid

[1] Volunteer Border Relief
Post Office Box 981
Harlingen, Tex.
(Health)

World Neighbors, Inc.
1145 19th Street, Washington, D.C.
(Agriculture, extension, health, and education programs)

[1] World University Service
20 West 40th Street
New York, N.Y.
(Health and education services to students)

[1] Medical Mission Sisters
8400 Pine Road, Fox Chase
Philadelphia, Pa.
(Health programs)

[1] Registered with the ICA Advisory Committee on Voluntary Foreign Aid.

4. OTHER HEALTH-RELATED ACTIVITIES BY FEDERAL AGENCIES

A. U.S. OFFICE OF EDUCATION

Senator HUMPHREY. Elsewhere, within this volume, reference is made to the work of the Office of European Economic Cooperation on the problem of broadening the base of scientific manpower within Western Europe. (See pp. 632 ff.)

Naturally, we of this subcommittee are especially interested in the adequacy of our own scientific base. Thus, we are concerned with the question, "How can the United States increase the reservoir of trained biologists, chemists, physicists, and other skills in the sciences?"

This question is obviously far broader than merely increasing the strength of medical science. It goes inevitably to the heart of educational policies in our Nation as they affect all scientific development.

In recent years, Congress and the American people have fortunately demonstrated their increased interest in improving scientific education of American youngsters. One phase of that training relates to education for the life sciences.

Accordingly, I addressed an inquiry to Commissioner Lawrence G. Derthick of the Office of Education. I asked for a compendium of material bearing on the present and future numbers of Americans with graduate degrees in the life sciences.

A reply from the Acting Commissioner, Wayne O. Reed, follows. It consists of a series of important references which will, I believe, be of use to this subcommittee, to other Members of Congress, and the public. These references bear upon both United States and European graduate manpower.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
OFFICE OF EDUCATION,
Washington, D.C., November 17, 1959.

DEAR MR. CHAIRMAN: This letter is in reply to your request of November 4 to provide you with information concerning the problem of strengthening the graduate manpower in the life sciences, not only in the United States but abroad.

Under separate cover we are forwarding the following material which we hope will be of assistance to your subcommittee:

1. Earned Degrees Conferred by Higher Educational Institutions, 1957–58. On page 5 of this publication you will find the number of graduate degrees conferred in the life sciences in 1957–58. Data for prior years are contained in earlier editions of this publication.

2. Census of Graduate Students in Basic and Applied Natural Sciences in the United States and Possessions as of April 1, 1958.

3. Graduate Student Enrollment and Support in American Universities and Colleges, 1954.

4. Development of Scientific, Engineering, and Other Professional Manpower, Joint Committee Print, May 1957.

5. "The National Defense Education Act and Higher Education," Higher Education, September 1959. This article contains a section on the graduate fellowship program under title IV of the act. This section describes the fellowships which have been granted in all fields, including biological science.

6. The questionnaire, "Survey of Students Enrolled for Advanced Degrees: Fall 1959," which has just been mailed out to 599 institutions of higher education. This is the study you referred to in your letter. The Office of Education is carrying out this study for the National Science Foundation and the National Institutes of Health. It will be several months before the findings of this study will become available.

7. Engineering and Scientific Manpower, Organized Efforts to Improve Its Supply and Utilization, Circular No. 483, August 1956, pages 23, 24, 33–38. Now being revised.

In regard to enrollments and degrees in the life sciences in other nations, particularly Western Europe, we suggest the following publications of which we do not have extra copies but which you can obtain from your library service:

1. The Problem of Scientific and Technical Manpower in Western Europe, Canada, and the United States, published in 1958 by the Organization for European Economic Cooperation, 2 Rue Andre-Pascal, Paris 16, France, 221 pages.

2. Scientific Manpower in Europe—A Comparative Study of Scientific Manpower in the Public Service of Great Britain and Selected European Countries, by Edward McCrensky, Pergamon Press, New York, 1958, 188 pages.

3. The 1956 Report of the Joint Committee on Atomic Energy, Engineering and Scientific Manpower in the United States, Western Europe, and the Soviet Union.

We are very happy to assist you in every way that we can, and if there is some way in which we can be of further help, please call upon us.

Sincerely yours,

WAYNE O. REED,
Acting U.S. Commissioner of Education.

B. U.S. INFORMATION AGENCY

Senator HUMPHREY. At the very start of this International Health Study, I contacted the Director at that time of the U.S. Information Agency, Mr. George V. Allen. I sought to determine the extent to which that important agency publicizes American achievements in medical research and in medical assistance abroad. Mr. Allen responded with a helpful report which depicted the many ways in which such information is distributed throughout the world.

Mr. Allen's report now follows:

U.S. INFORMATION AGENCY,
Washington, D.C., November 10, 1958.

DEAR MR. CHAIRMAN: Mr. Allen has asked me to forward to you the enclosed memorandum and annexes regarding ways in which USIA has publicized abroad work done by the United States in the field of international health. This material is furnished in response to your request of October 7, and is based primarily on activities of our various media during the past 6 months.

Please let us know if you would like any additional information on this subject.

Sincerely yours,

CLIVE L. DUVAL 2d,
General Counsel and Congressional Liaison.

USIA ACTIVITY IN PUBLICIZING AMERICAN EFFORTS IN THE FIELD OF INTERNATIONAL HEALTH

This memorandum consists of summaries of USIA activities within the past 6 months in reporting and explaining to people overseas various U.S. efforts in the field of international health. The summaries are presented by principal USIA media: Press and Publications Service (IPS), Broadcasting Service (IBS), Information Center Service (ICS), and Motion Picture Service (IMS).

The output of these media (with the partial exception of the Broadcasting Service) goes to U.S. Information Service (USIS) posts in some 80 countries. The Broadcasting Service reaches people abroad directly through Voice of America broadcasts and also furnishes scripts, tapes, and other material which many USIS posts use in producing broadcasts on local stations.

In addition to using the material originated by the Agency many USIS posts originate materials of their own. USIS posts in areas where medical missions are in operation usually routinely cooperate with these missions to publicize their activities locally. This local output is particularly significant. Often, Agency-originated materials are adapted locally to make them more useful in the country concerned before placement in indigenous media.

While specifics are not available, analysis of the placement of certain categories of material by USIS posts clearly shows that medical subjects, along with other materials on science and technology, are among the most widely used items in the Agency's output.

A prime example of USIA attention to international health coverage lies in the Agency's continuing worldwide emphasis on American participation in the campaign to eradicate malaria. USIA originally helped develop the interest which led to the campaign and has covered this major story in detail, sending feature material of all kinds to its field posts as rapidly as it becomes available. For their part, the posts determine the degree of interest in their countries and plan their uses of the material accordingly. Thus, in parts of the world where malaria does not exist, the material is used primarily to demonstrate U.S. cooperation in international health activities and U.S. concern for the welfare of other peoples. Where malaria is a problem, emphasis is direct, but it varies according to the degree of U.S. activity in each country. In countries where American teams are active, the activity is naturally greatest, with USIS cooperating closely with ICA missions.

In a similar way, all output receives special evaluation by each USIS field post for application to its own country objectives.

Press and Publications (IPS). IPS coverage consists of both fast transmission (through the wireless files sent to USIS posts) and mail service. Features sent by mail include USIA-originated materials, reprints of useful papers and articles, and pictorial features. Some IPS output is sent automatically to all world posts; other material is originated at the request of specific posts. * * * The activity breakdown follows:

1. *Wireless files.* The log sheet for the past 6 months shows the following coverage of U.S. international health activities, listed by the headline used on the individual stories. (The list does not include medical and health stories on purely U.S. progress.)

NIH Grants to 12 Foreign Countries
International Iron Lung Pool Proposed
Blood Appeal Made for Swedish Boy
Foreigners Share U.S. Health Grants
Salk Exhibit
Swedish Boy Has Kidney Operation in U.S.
World Specialists at London Cancer Meet
U.S. Presses WHO for Antimalaria Drive
U.S. Calls for Drive on Waterborne Diseases
U.N. Publication Surveys Cancer, Heart Research Possibilities
U.S. Unveils Four-pronged Approach to Health Problems
Foreigners Hail U.S. Research Proposal at WHO
U.S. Proposes WHO Undertake Cancer, Heart Research
New Heart Diagnostic Aid
U.S. Public Health Service Announces Worldwide Grants
U.S. Creates International Health Post
Discoverers of Three Wonder Drugs Honored at U.S. Meeting
WHO Experts Study Means to Combat Diseases
WHO Urges Study to Ease Mankind's Fear of Atomic Age

2. *Publications and reprints.* IPS regularly sends to all oversea posts two professional newspapers published by leading American pharmaceutical laboratories. Both publications carry news of international activities, and are made available to USIA by the companies as a free contribution. They are distributed to individual doctors and dentists and placed in USIS libraries. Stories from these papers are frequently republished in oversea newspapers and magazines. The publication, "Medical News," has an oversea circulation of 616 copies; "Dental Times" is sent to 241 libraries and users.

3. *Pamphlets.* Pamphlets produced for oversea use by USIA are based primarily on American developments of interest to foreign peoples. Special care is taken to credit international developments in medical science wherever possible.

During the past few months pamphlets have been produced on progress in medicine since 1945, and on the origins and uses of antibiotics. Medical and related uses of atomic energy, from diagnosis to treatment, have been described in pamphlets on atomic energy. A full-scale pamphlet devoted solely to atomic medicine is in preparation.

A special pamphlet delineating U.S. participation in the malaria eradication program was sent to the field, along with reports on overall progress in combating the disease.

4. *Features.* Feature coverage of international health generally is included in "Science Notes," which covers a wide variety of subjects in the science field. The four most recent issues have, for example, included these features on health: U.S. Assists Other Countries in Nuclear Training (including applications of radioactive isotopes in medicine); U.S. Assists Foreign Scientific Personnel; Potential New Anti-Leprosy Drug Produced; U.S. Reports New Substance To Rid Body of Strontium.

In addition, the IPS News and Features Branch prepared a series of biographies for use in a joint project with the Voice of America. The biographies, which were sent to oversea posts, included those of Americans prominent in various health fields.

5. *Visual materials.* Visual materials (which include picture stories, photographic prints, cartoons and continuity strips, and news pictures) are sent to USIS posts in the form of prints, copy negatives, and plastic plates for placement in local newspapers and magazines. All regularly include international health subjects.

"M.D. International," a typical picture story of 13 photos, shows the work of volunteer U.S. doctors of the Medico organization. "An Enemy Exposed" (7 photos) and "A War To Save Lives" (13 photos) are picture stories on the antimalaria campaign. "Doctor Is the Same in Any Language" is a photo story on an American medical officer in Korea who opened a free clinic on his own initiative. "How Tuskegee Scientists Helped Develop Salk Vaccine" is typical of a story without direct international implication, but of supplemental use in achieving other objectives.

"Science Photo Briefs" frequently cover medical subjects, although international health developments are generally given the more thorough treatment of a photo story. During the past few months, the "Science Photo Briefs series has contained such captions as: "New Heart Instrument Saves Lives"; "Atomic Energy Used To Prevent Beach Pollution"; and "More U.S. Doctors Use the Atom."

A three-panel cartoon feature called "Did You Know?" often deals with the international health theme, while the continuity cartoon strip, "True Tales," has illustrated the lives of Americans who have contributed to international health progress. The life of Dr. Jonas Salk is now in production in the "True Tales" series.

Broadcasting Service (IBS). IBS is divided into a variety of area and language services, each of which originates programs of special interest to its audience. All services are provided with basic information by the IBS Central News Desk, and by the Talks and Features Branch of Central Program Services.

Both the Central News Desk and the Talks and Features Branch have given considerable coverage to international health affairs. In addition, the language and area services have treated the subject in special features, including interviews with foreign nationals and Americans with foreign language facility.

World Wide English Division broadcasts have made wide use of Americans without lanaguage qualifications, and of English presentations of the scripts prepared by the Central News Desk and the Talks and Features Branch.

Coverage has been so extensive that a summary is difficult to prepare. * * *
Twenty-four television programs also are available to the agency's field posts, through the facilities of the IBS Television Service, which is now being split off from IBS and established as a coequal of other USIA media.

Information Center Service (ICS). ICS is concerned with the maintenance of USIS libraries, information centers and other cultural activities. Its activities in the international health field have included the issuance of pertinent bibliographies, pamphlets and international documents, U.S. Government publications, and translations of selected books, as well as the display of exhibits.

Motion Picture Service (IMS). IMS has about 90 films in its library dealing with matters of health and, in addition, obtains other films on loan to fill special requests from oversea posts. The Agency has also published a catalog of science films and film strips. It lists about 1,500 films dealing with medicine, dentistry, and other health subjects.

C. TENNESSEE VALLEY AUTHORITY

Senator HUMPHREY. By way of background, we may note that as of the fiscal year 1958, the Tennessee Valley Authority listed a few then-current scientific research projects—all, of course, of a domestic nature—in the life sciences. This information, as conveyed on July 6, 1960, in response to our request by Marguerite Owens, TVA's Washington representative, follows:

TVA Research in Life Sciences

Biology

40. Improvement of larvicide.

Description. Study of the mechanism whereby larval cuticle acts as barrier to penetration of DDT and measurement of rates of transport of DDT through model membranes of collodion simulating insect cuticles, including development of methods of preparing test membranes containing protein or having multiple monolayer protein coatings superimposed with wax.

Medicine

41. Fluorine toxicological research.

Description. Support of toxicological research at University of Cincinnati on behavior of fluorine and fluorine compounds in human organism.

42. Human nutrition studies.

Description. Appraisal of changes in nutritional status of individuals in the Chestuee watershed to determine changes in health status occurring with changes in land use, water control, economic, and social conditions.

5. ACTIVITIES OF THE NATIONAL ACADEMY OF SCIENCES—NATIONAL RESEARCH COUNCIL IN EXCHANGE PROGRAMS IN THE SCIENCES

Senator HUMPHREY. It would be virtually impossible to discuss international cooperation in medicine or in any other scientific field without referring to the topic of "exchange programs."

If there is any one recommendation on which scientists have been agreed in all their communications to us, it is this: "Strengthen public and private exchange programs. They provide lifeblood for international teamwork."

As a member of the Senate Committee on Foreign Relations, it has been my privilege to work on many phases of these programs. The most renowned is, of course, the Fulbright program. It rightly bears the name of its able author, Senator J. William Fulbright, chairman of the Committee on Foreign Relations.

Another important program bears the names "Smith-Mundt." It was coauthored by a member of this subcommittee, the Honorable Karl

Mundt of South Dakota, and by a former member of the Committee on Foreign Relations, the Honorable H. Alexander Smith of New Jersey.

For a discussion of the official place of exchange programs in world medical (and other) relations, the subcommittee turned to the most expert single source—the National Academy of Sciences-National Research Council. I asked Detlev Bronk, distinguished President of the National Academy of Sciences, for a comprehensive report on those programs which are administered for Federal agencies by the Academy. I felt that it was necessary for this subcommittee to view programs involving medical science, in perspective of their relationship with all other U.S. official exchange programs.

Dr. Bronk responded by asking Dr. M. H. Trytten, Director, Office of Scientific Personnel, to develop the report. It is thanks to Dr. Trytten's invaluable experience and personal insight that the very helpful information which follows is available. It presents a well-rounded picture of overall U.S. governmental activity in the exchange field. It will serve, I am sure, as a helpful source of insight to all health experts and to individuals interested in exchanges, as such.

REPORT BY NATIONAL ACADEMY OF SCIENCES-NATIONAL RESEARCH COUNCIL ON EXCHANGE PROGRAMS IN THE SCIENCES (AND HUMANITIES)

A. INTRODUCTION

Since World War II, exchange programs in all fields have shown remarkable increase. Particularly in the sciences and technology, many persons have been brought to the United States for shorter or longer periods and at all levels of training.

The National Academy of Sciences-National Research Council has been involved in the administration of a number of these programs, and the growth of such programs seems to be continuing.

Partly, these programs reflect a realization of the importance of international exchanges in the strengthening of science in the free world and in strengthening relationships among scientists, especially in the Western World. Partly, they reflect a desire to improve international understanding and cooperation by the exchange of leading persons in academic life. Party, they reflect the fact that science and technology are essential ingredients in the development of viable democratic societies in the countries emerging into independence and in the improvement of their own educational, scientific, and technical national competence.

It seems likely that such activities will continue to increase for some time because of the growing need to develop stable economies in emerging countries and because of the recognition that this can only be done if these countries achieve substantial progress in developing their abilities to take their place on fair terms in a highly technological world.

B. ROLE OF THE FEDERAL GOVERNMENT AGENCIES IN THE AREA OF EXCHANGES

There are many Federal agencies which are involved in one or another type of exchange activity. Such programs for the Government, on the whole, are of considerable variety. Some of these programs bring substantial numbers of individuals to the United States for training and experience. Such training and experience may be at the expense of the U.S. Government, as in the case of large numbers of trainees under programs of the International Cooperation Administration, or may be at the expense of home countries or other agencies outside the United States, as in the case of many trainees under Atomic Energy Commission programs. Some of these conspicuous programs will be briefly described below. It should be added, however, that most of the large programs supported by Federal funds cover areas and specialties outside the scientific and technical fields, such as education, journalism, commerce, radio and television, industrial management, etc.

Programs in which the National Academy of Sciences-National Research Council is involved constitute the substantial majority of exchanges in the scientific and technical fields above the trainee level. Largely they involve personnel at the postdoctoral level or the more senior level, and are generally of at least 1 year's duration. With the exception of the Smith-Mundt and Fulbright programs, they are in general confined to the fields of the natural sciences and engineering. The several programs in which the Academy-Research Council takes part are briefly described below.

C. FULBRIGHT PROGRAM

The Fulbright program is established by Public Law 584. It was made possible by the existence of impounded currencies arising from the sale of surplus property abroad, a portion of which has been set aside for the purposes of the act. The program is administered under the Board of Foreign Scholarships in the Department of State, and the senior portion is administered under a contract between the Department of State and the National Academy of Sciences. The administration of the program, however, is carried out under a Committee on International Exchange of Persons, whose members are nominated by the four research councils (American Council on Education, Social Science Research Council, American Council of Learned Societies, National Research Council), which constitute the Conference Board of Associated Research Councils. The staff members are employees of the National Academy of Sciences-National Research Council.

The Fulbright program is in actuality a series of programs, each resulting from a bilateral agreement made between a foreign country and the United States and guided abroad in the country by a binational commission or foundation.

Since the program is financed through impounded currencies, foreign scholars are provided with travel grants only and, in general, receive their maintenance and support while in the United States from grants from their own countries, stipends from American universities or foundations, or from U.S. funds made available through the Smith-Mundt program. Only a small fraction of these maintenance grants arise from Federal resources.

Americans going abroad receive their own travel expenses, plus a stipend and living allowances for themselves and dependents.

The candidates for Fulbright grants apply to the Committee on International Exchange of Persons. They are evaluated by a series of panels in the several disciplines and finally are selected by the CIEP for nomination to the Board of Foreign Scholarships. The selection is largely based on the evaluation of the individual for professional competence by the panels mentioned above. In the final selection, however, additional criteria are involved, having to do with the probable effectiveness of the individual in representing American scholarship and in meeting the challenges of the program abroad.

The stated objective of the Fulbright act in the main is to improve international understanding by the exchange of persons in academic life, whether it be at the student, faculty, or research level. While in some cases the technical assistance overtones are present, primarily the program aims at achieving international understanding by an exchange of persons at the scholarship level.

D. SMITH-MUNDT PROGRAM

The Smith-Mundt program is based on Public Law 402. Under this program, funds are available to supplement Fulbright grants, both for incoming scholars and for Americans going abroad, where the resources of the Fulbright program are inadequate to provide the numbers or quality of scholars desired. The program is also available to finance exchanges in which no Fulbright program exists. As in the case of the Fulbright program, the exchanges under the Smith-Mundt program administered under the Academy contract relate only to senior persons such as professors and research scholars.

E. VISITING RESEARCH SCIENTISTS PROGRAM

This program has been in operation since 1953, at which time it was confined to the major European countries involved in the Organization for European Economic Cooperation. Under this program, persons at the postdoctoral level in the sciences and engineering have been brought to the United States for basic research in American universities and research laboratories for a period in each

case up to 2 years. In 1958 the program was extended on a worldwide basis to include most countries from which postdoctoral candidates could be expected.

This program differs in administration in that candidates for appointment are nominated by selection committees abroad. These committees in each country were established at the request of the National Academy of Sciences through the leading scientific organizations most comparable to the NAS. The program has, therefore, been sponsored in each country by the scientific organization of highest prestige and the selections and nominations made by the leading scientists of the country. The quality of the candidates reflects these facts.

Nominees are placed by the Academy-Research Council in the university or research laboratory most likely to furnish appropriate opportunities for the successful prosecution of their research objectives.

While appointments have been in the main at the postdoctoral level, a small number of appointments have been made at an earlier level in countries in which development of science is at an earlier stage and have been extended to individuals who have been identified as likely to develop into scientific leaders.

This program is financed by the International Cooperation Administration.

F. INTERNATIONAL ATOMIC ENERGY AGENCY PROGRAM

After the establishment of the International Atomic Energy Agency in Vienna, this Agency established as one of its early programs a series of fellowships open to candidates throughout the world for scientific research and study in the peaceful uses of atomic energy.

The National Academy of Sciences was requested to administer the program as it relates to candidates from abroad who wish to study in the United States. Candidates nominated for study in the United States are supported in two ways. The so-called type II fellows are nominated to the United States and are placed by the Academy-Research Council in appropriate educational institutions or laboratories. They are supported by funds supplied by the International Cooperation Administration under a contract with the National Academy of Sciences.

Another category known as type I fellows are nominated to the Academy and are handled in the same way, except that they are supported by funds arising from the resources of the International Atomic Energy Agency itself. They tend to be at two levels, since there is included a more senior level of appointees who are generally persons of substantial competence, experience, and reputation in their own scientific fields.

In general, candidates under this program are either persons at approximately the master's level, or above, who are seeking additional training or experience in specific technological skills, or they may be more senior persons who desire to carry out research.

G. NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

The National Academy of Sciences is administering a program supported by the National Aeronautics and Space Administration under which appointments may be made to senior fellows from abroad to do work at the laboratories of that agency. Appointments may be made at the postdoctoral level and at levels beyond, and are generally of 1 year's duration, although they may be extended. The purpose of this program is to make it possible for well-established scientists from abroad to work with American scientists in the general areas of space science, to bring to bear the competences of distinguished scientists from abroad and to acquaint them with the progress of research in this area, to stimulate research abroad in these aspects of science in free countries.

H. QUARTERMASTER RESEARCH AND ENGINEERING CENTER LABORATORIES (VISITING SCIENTISTS RESEARCH ASSOCIATESHIPS)

A smaller but very similar program to the National Aeronautics and Space Administration program is administered under contract with the Quartermaster Corps Laboratories at Natick, Mass. The programs are alike in aims, except that the Quartermaster Corps appointments are tenable at the laboratories of the corps at Natick and in Chicago, Ill.

I. ORGANIZATION FOR EUROPEAN ECONOMIC COOPERATION

The National Academy of Sciences-National Research Council also administers a program sponsored and financed by the Organization for European Eco-

nomic Cooperation through the National Science Foundation, with whom the National Academy of Sciences has contracted to administer the program.

Under this program Americans may apply for fellowships. Generally tenable in OEEC countries, the fellowships normally extend for periods from 8 weeks to 6 months, although in exceptional cases appointments may be for a period of 1 year.

The program covers most fields of science and technology with the exception of medicine. The purpose of this program is to assist scientific and technical institutions to incorporate more quickly into their own advanced teaching and research programs the most recent developments in their own and other countries. For this reason the fellowships are intended primarily to permit institutions in the United States to send senior scientists, mathematicians, and engineers on their staffs to study new techniques and developments at advanced research and educational institutions abroad. The program is administered at the postdoctoral level only.

J. NORTH ATLANTIC TREATY ORGANIZATION

The National Academy of Sciences administers a program supported and financed by NATO and under a contract with the National Science Foundation. This program in the United States is a part of a NATO-wide program in which each country administers a NATO fellowship program for its own nationals. The program is open at the postdoctoral level only. It differs from the OEEC program in scope, in that fellowships will be awarded in the natural sciences and in a few of the social sciences which relate rather directly to the natural sciences, such as geography, mathematical economics, econometrics, etc. It is expected that recipients of awards in nearly all cases plan to study abroad in a country that is a member of NATO.

K. NATIONAL SCIENCE FOUNDATION

The National Academy of Sciences administers five programs for American nationals under a contract with the National Science Foundation. The Academy carries out the selection procedures and nominates candidates for these fellowships for appointment by the National Science Foundation.

Three of these programs are at the predoctoral level. At the postdoctoral level appointments are made at the relatively immediate postdoctoral level or at a somewhat more senior level. The programs are open to citizens of the United States only, but the individuals may apply to study abroad.

L. CONDITIONS AND NUMBERS OF APPPOINTMENTS

Quantitative and qualitative characteristics of these programs are given in tables A5–1 and A5–2, using in each case the most recent figures available.

TABLE A5–1

PROGRAMS FOR AMERICANS ABROAD (QUANTITATIVE)

	Number of awards	Fields	Source of funds
Fulbright	[1] 375	All fields	Impounded local currencies.
Smith-Mundt	[1] 70	do	Dollar appropriations.
OEEC	25	Natural sciences	OEEC funds.
NATO	40	Natural sciences and related social sciences.	NATO funds.
National Science Foundation:			
Predoctoral	[2] 24	do	NSF (United States).
Postdoctoral	90	do	Do.
Senior postdoctoral	62	do	Do.

[1] 1959–60.

[2] Candidates may elect to study abroad. Figures given are for those who elected to study outside the United States.

PROGRAMS FOR FOREIGN NATIONALS IN THE UNITED STATES

	Number of awards	Fields	Source of funds
Fulbright	494	All fields	Impounded currencies.
Smith-Mundt	[3]	do	United States.
Visiting research scientists program.	[4] 120	Natural sciences	Do.
International Atomic Energy Agency.	[4] 100	Peaceful uses of atomic energy.	United States and IAEA funds.
Quartermaster	3	Related to Quartermaster problems.	United States.
National Aeronautics and Space Administration.	4	Space-related sciences	Do.

[3] Supplemental.
[4] 1958–60.

TABLE A5–2

PROGRAMS FOR AMERICANS ABROAD (QUALITATIVE)

	Selection	Duration
Fulbright	Competitive with recruitment for some countries.	Generally 1 year (minimum 3 months in special cases).
Smith-Mundt	Nomination by American embassies.	Generally 1 year (3 months in special cases).
OEEC	Competitive	3 to 6 months (1 year in some cases).
NATO	do	1 year.
National Science Foundation:		
Predoctoral	do	Do.
Postdoctoral	do	1 year (2 years in some cases).
Senior postdoctoral	do	Generally 1 year.

PROGRAMS FOR FOREIGN NATIONALS IN UNITED STATES

	Selection	Duration
Fulbright	Nomination by foreign commissions.	Generally 1 year.
Smith-Mundt	Nomination by American embassies.	Do.
Visiting research scientists program.	Selection committees established by foreign academies.	Up to 2 years.
International Atomic Energy Agency.	Nomination to IAEA by foreign atomic energy commissions and referral to National Academy of Sciences by IAEA.	6 months to 1 year.
Quartermaster	Selection in United States by National Academy of Sciences.	1 year.
National Aeronautics and Space Administration.	do	Do.

M. PROGRAMS ADMINISTERED BY OTHER AGENCIES

There are several very large programs of exchanges which are administered by agencies other than the National Academy of Sciences-National Research Council. However, in the main these programs deal with categories rather clearly distinguished from categories involved in the programs administered by the NAS–NRC.

The program most closely related and comparable to those described above is the senior program supported and administered by the National Institutes of Health. Under this program, 60 to 70 scientists will be brought into the United States within the next year to carry on research at the NIH. This program is relatively new, having been in existence for only 2 or 3 years. In 1959–60 only about half the number were brought in that are contemplated for the next fiscal year.

This program is primarily postdoctoral in the level of candidates selected and the methods of selection are quite similar to the visiting research scientists

program described above, in that selections are made by committees abroad in each of the several countries concerned. These committees are set up by the agency most similar to the NIH in our own country.

The stipends for this program, however, are considerably more attractive than are stipends under the VRSP. Stipends are of the order of $7,000 per year, plus travel.

Beyond this program, most of the federally supported exchange programs are of the leader and specialist or trainee category. This is particularly true of programs supported by the International Cooperation Administration and the Department of State. Furthermore, the categories generally relate to specific areas of training tending to be outside the traditionally academic disciplines. Such fields as labor, management, radio and television, journalism, public administration, and education are examples. In most of these programs the emphasis is on short-term grants from 6 weeks to (in most of them) a maximum of 10 months. In some of these programs, administration is carried out by other Federal agencies or private organizations. For example, the Department of Agriculture, the Department of the Interior, and other agencies bring people to the United States under programs financed by the International Cooperation Administration.

No attempt is made here to list all of these agencies and programs because of the great magnitude and diversity of the programs and the fact that, on the whole, in none of them is the number of senior or postdoctoral level persons a substantial factor.

N. DIFFERENTIAL ASPECTS

One of the notable features in the several programs described is the difference in stated purpose and objectives involved. The Fulbright program, for example, as was indicated, is aimed at improving international understanding. For this reason, the program covers a wide range of fields and is open to individuals not only in the normal academic disciplines, but in other areas which are less traditionally academic, such as social work, art, music, and drama, as well as the sciences, the social sciences, and the humanities.

Even so, the Fulbright program has come to have a substantial overtone of technical assistance in recent years, particularly in the countries which are rapidly developing their educational systems. Foreign foundations and commissions think of the program as a resource through which they can improve the training and experience of their own professional personnel, as well as an instrumentality for bringing to their countries needed experts.

The technical assistance aspect is more conspicuously present as a motivating factor in such programs as the visiting research scientists program and the International Atomic Energy Agency program. Particularly in the latter the aim is to accelerate the peaceful uses of atomic agency as a primary objective. In the case of the VRSP there is a clear recognition of the importance of assisting emerging nations to develop a solid senior scientific competence as a basic long-range factor in the development of their own national technological establishment. In this program, because of the quality and competence of the scholars invited to the United States, however, their own contributions to American basic research are so substantial as to constitute quite adequate justification for the program on this basis alone.

The programs do, however, differ also in the selection mechanisms. For Americans selected to go abroad the mechanisms are essentially similar in all respects. Applications are received by the administrators of these several programs, and panels of leading and distinguished scientists and specialists are assembled to review the applications, to rate them qualitatively and select those to whom awards should be given. While, in general, the criteria have to do mainly with the competence of the individual and his specialty, personal suitability is a factor, particularly in those programs in which the individual represents the United States abroad.

For scholars coming from abroad the selection procedures vary. As has been indicated, in the VRSP the leading scientific organization in each country has established a selection committee composed of the leading scientists in that country. The committee makes the selections and nominations to the National Academy of Sciences.

In the case of the Fulbright program the selections are made in each country by a binational commission composed of nationals of that country and Americans resident in the country.

The Smith-Mundt appointments, however, are made by the American Embassy staffs.

In the case of the two smaller programs, the Quartermaster Corps, and the National Aeronautics and Space Administration, program applications are made directly to the National Academy of Sciences-National Research Council without the intervention of foreign selection committees, largely because of the limited magnitude of these programs, which do not indicate the desirability of establishing special selection committees abroad.

Perhaps the widest difference is in the factor of stipends. In the IAEA program, in general, a base stipend of $8 per day is provided, although in some special cases $10 is provided. Primarily because of the somewhat shorter duration of these grants, dependents are not included.

In the VRSP, the base stipend is $10.50 per day, plus $1 per day per dependent. Transportation is also provided for dependents.

Both of these stipends are distinctly minimal and for persons without additional resources constitute considerable difficulty. This is particularly true because most of the recipients, especially in the VRSP, are persons of distinction and stature in their own countries. Furthermore, their status requires that they meet and mingle with the leading scientists in the United States in a social way, and they find it difficult to do so on a limited budget. Other programs again, such as the Quartermaster Corps and the NASA, have adequate stipends and consequently no financial problems arise.

O. ACHIEVEMENTS OF THE PROGRAMS

These several programs have risen as a result of circumstances of opportunity and as a result of convictions with regard to desirable goals. The existence of impounded foreign currencies is an example of an exploitable opportunity. Among the goals may be mentioned the whole concept of technical assistance, on the one hand, and the need to work toward greater international understanding, on the other. There are other desirable outcomes of such programs which have not so clearly emerged in their justification, such as the need to develop teamwork among scientific workers the world over, especially in common problems of international significance, and to accelerate the dissemination of useful scientific information across boundaries.

The measurement of accomplishment along these many lines must necessarily remain imprecise. Judgments in the main rest on subjective evaluations much more than on any available objective measurements. The numbers given above do not even indicate the impact made abroad by American scholars on their colleagues there, the population as a whole, nor upon the persons in the seats of power and decision, whoever they may be. The impact of a foreign experience upon a person is not even readily evaluated by the person himself until long afterwards, and perhaps it is never fully realized. Similarly, the foreign scholars in the United States may vary widely in respect to their impact upon us, our impact on them, and the amount of carryover with which they return.

Subjective judgments are, however, important and significant. They are by no means to be disparaged. In the aggregate they are probably far more accurate in their assessment of achievements than the indications arising from the quantitative techniques available at present. These techniques have been employed in only limited studies and are in a developmental stage.

With respect to the Fulbright and Smith-Mundt programs, there is strong evidence of the high regard which these programs enjoy at home and abroad. Persons traveling abroad who have been in positions to evaluate sentiment know of this high regard. A number of chiefs of missions abroad speak of them as perhaps the most effective programs in action. In many countries "alumni associations" exist of persons who have been to the United States on such appointments. Americans involved in these programs are touched by the warmth of welcome abroad from former grantees. In the United States the loyalty to the program of former fellows is one of the great strengths of the program. Their voluntary assistance in many ways contributes greatly to the resources which the programs may call upon.

These programs have frequently been thought of too much in terms of the student level. This is understandable in that the number of individuals involved is higher for the student category than for any other. However, the impact of the senior participant is far greater. He represents American scholarship if he is an American grantee. His impact is on the students, faculty, and community at large in a level of conspicuousness far beyond the student. His on-going

relationships which he establishes abroad contribute to the development of an international scholarly community. Since the role of the scientist-scholar is an ever greater one in affairs generally, this is of utmost importance.

In this general area of increasing understanding and of establishing relationships among the scholars of the world, all the evidence would seem to indicate positive achievement of a high order. One result of the few studies made in this respect is the recent Gullahorn report, a copy of which is attached.

In the more substantive sense of technical assistance, more can be said. Technical assistance programs heretofore have been, perhaps of necessity, short range, as far as time is concerned, and largely a matter of sharing methodology and techniques. That this is now an inadequate view is becoming clearer. In the long run, a stable productive economy in the modern world must be based on technology. Technology must be based on related research activities and on education. This is becoming more and more recognized and is the reason for the widespread aspirations for education and technical development in the emerging nations. The satisfaction of these aspirations will have much to do with the creation of a more stable world political situation.

All of these programs have made notable contributions in this regard. Under the Fulbright program, hundreds of foreign scholars have been given additional training and experience. American professors have not only contributed to existing fields, but to the development of new fields and to the expansion of others. The teaching of English as a foreign language in many countries has been greatly strengthened as one prerequisite to progress in many technical areas.

The visiting research scientist program has been especially significant in regard to meeting specific needs in less developed countries.

Many of the persons appointed represent areas of technology of particular scientific or economic importance. An Egyptian scientist now studying here will return to lead in the science of food preservation. An Indian scientist at work in this country will return to lead in the field of paleo-botany in India, with implications for petroleum exploration. A Pakistanian scientist will return to a key position in the biological and medical aspects of nuclear science research. Cases such as these could be multiplied as examples of direct impact of high significance to the development of science in the emerging nations.

The advantages to the United States are many in these several programs. For Americans going abroad for study and teaching as in the case of the NSF programs and the Fulbright and Smith-Mundt programs, the benefits are both direct and indirect.

The direct benefits derive from the opportunity of personal broadening and professional enrichment which come from working with foreign scholars in areas of research where preeminent work is being done abroad. The gain to American scholarship is frequently of great value. Frequently research necessitates a foreign locale by its nature. For research scholars and professors as well, the intimate knowledge gained of foreign areas and cultures is essential as our Nation comes ever closer to the rest of the world in its relationships. We are even yet largely an isolated culture compared to the former colonial powers and need more people who can understand and interpret foreign cultures.

The indirect benefits arise from the improved image of the United States abroad which results from the growing network of friendship and understanding among leading scientists and other professional personnel who have learned to know each other and each other's society.

These same indirect benefits obtain in the case of foreign scholars who come to the United States. There is, however, a great benefit to our research and teaching by having so many distinguished scholars spend long periods in our universities and laboratories. These are persons of competence who enrich our own country by contributing to our understanding of the foreign societies we are dealing with more intimately. They give direct benefit by their contributions to American basic research. This is especially important at a time when American science is hard pressed to keep basic research activity at an adequate level. The stimulus of their presence and their ideas is valuable beyond the immediate scope of their specific problems.

In general, it can be said that the need for worldwide scientific collaboration is likely to increase. The greatly successful International Geophysical Year program demonstrated the value of and the necessity for international cooperation. Many of the scientific problems of the future will be international in scope and will require international collaboration. Meteorology in the future will require a more global attack. Oceanography, by definition, is concerned with

international areas of research. Its problems and answers are to be found outside the borders of any country. The study of the Indian Ocean and Antarctica are examples. The wise use of dwindling resources will require international approaches.

These things indicate the need to have strengthened scientific resources of men and facilities in other countries. While this need can be met only by the concerted efforts of scientists in the several countries, it is obvious that help from the more advanced countries will be necessary. The leadership position of the United States in science and technology places a special responsibility on our efforts.

TABLE A5–3

AWARDEES——VISITING RESEARCH SCIENTISTS' PROGRAM (WORLDWIDE SCIENTISTS RESEARCH PROJECT

Administered by the National Academy of Sciences-National Research Council under contract with the International Cooperation Administration, March 1960

	Home institution	Field of study	U.S. assignment
From Argentina:			
S. Freiberg	Tucumán University	Engineering	University of California, Berkeley.
R. Grinfeld	La Plata University	Physics	Do.
R. J. Poljak	do	Earth sciences	Massachusetts Institute of Technology.
Jorge Wright	Ministry of Agriculture	Agriculture	National Fungus Collection, Beltsville, Md.
From Australia:			
C. K. Coogan	Commonwealth Scientific and Industrial Research Organization, Melbourne.	Chemistry	University of Illinois.
I. D. Marshall	Australian National University.	Medical science	University of California, Berkeley.
Kenneth McCracken	University of Tasmania	Physics	Massachusetts Institute of Technology.
David White	University of Melbourne	Medical science	National Institutes of Health.
From Austria:			
Mechtilde Brandenstein.	Versuchsanstalt Arsenal, Vienna III.	Chemistry	Philips Laboratories, Irvington-on-Hudson, N.Y.
Johann Leicht	University of Innsbruck	Mathematics	University of Chicago.
K. Bretterbauer [1]	Bundesamt für Eichvermessungswesen, Vienna.	Earth sciences	Ohio State University.
From Belgium:			
L. A. Burnelle	University of Liège	Chemistry	Massachusetts Institute of Technology.
J. M. Denucé	University of Ghent	Biology	Child Research Center of Michigan, Detroit.
J. M. Ghuysen [1]	University of Liège	do	University of California, Berkeley.
From Brazil:			
J. M. Lisbôa	State of Minas Gerais	Agriculture	Louisiana State University.
Hêni Sauaia	São Paulo University	Biology	University of California, Berkeley.
From Chile:			
George Hodgson	University of Chile	do	California Institute of Technology, Pasadena.
From Colombia:			
Rafael Bravo	Palmira University	do	Michigan State University, East Lansing.
From Costa Rica:			
Gil Chaverri	University of Costa Rica	Agriculture	Iowa State College, Ames.
From Denmark:			
E. G. Jorgensen [1]	Royal Danish School of Pharmacy.	Biology	Carnegie Institution of Washington, Stanford, Calif.
M. G. Simesen	Royal Veterinary Agricultural College, Copenhagen.	Agriculture	University of California, Davis.
From Ecuador:			
Pablo Martinod	National Institute of Nutrition, Quito.	Medical science	Vanderbilt University.
From Egypt:			
A. M. El-Tabey Shehata.	University of Alexandria	Food technology	Massachusetts Institute of Technology.
Ezz Eldin Taha	National Research Center, Cairo.	Biology	University of Wisconsin.
Mohamed M. Zaki	Ain Shams University, Cairo.	Agriculture	University of California, Riverside.

[1] Returned home.

AWARDEES——VISITING RESEARCH SCIENTISTS' PROGRAM (WORLDWIDE SCIENTISTS RESEARCH PROJECT)—continued

	Home institution	Field of study	U.S. assignment
From Eire:			
Vincent G. Hart [1]	University College, Cork	Mathematics	Massachusetts Institute of Technology.
John O'Sullivan	Medical Research Council of Ireland.	Chemistry	Sloan-Kettering Cancer Research Institute, Rye, N.Y.
From Finland:			
E. S. Avela	University of Helsinki	do	Syracuse University.
J. J. Donner [1]	do	Earth sciences	Yale University.
O. J. Halkka [1]	do	Biology	Columbia University.
From France:			
Guy Echalier	Sorbonne, Paris	do	California Institute of Technology, Pasadena.
Henri Epstein	Centre National de la Recherche Scientifique, Paris.	Physics	Princeton University.
Gérard Flamand	do	do	Do.
Wladimir Nesteroff [2]	do	Earth sciences	Columbia University.
Alain Paraf [1]	Laboratoire Centre de Recherches Vétérinaires d'Alfort.	Medical science	Wistar Institute, Philadelphia.
From Germany:			
Heinz Duddeck	University of Hannover	Engineering	Stanford University.
Ulrich Jux	University of Cologne	Earth sciences	Louisiana State University.
M. Kretzschmar	University of Göttingen	Physics	University of California, Berkeley.
G. H. Landwehr	Physikalisch-Technische Bundesanstalt, Braunschweig.	do	University of Illinois.
Anita Menger	Federal Research Institute of Cereal Industry, Detmold.	Agriculture	University of Minnesota.
W. K. Mundry	Max-Planck Institute for Biology, Tubingen.	Biology	California Institute of Technology, Pasadena.
Jost B. Walther	Institut der Max-Planck Geselischaft, Bad Nauheim.	Medical Sciences	National Institutes of Health.
From Greece:			
John W. Danezis	Athens Maternity Hospital	do	Mount Sinai Hospital, New York.
Andreas Gregory Galinos.	Technical University, Athens.	Chemistry	New York University.
Sotirios G. Iatridis	University of Athens	Medical science	School of Medicine, University of North Carolina.
John M. Kalovoulos	University of Thessaloniki	Agriculture	University of Illinois.
Leonidas Liacos	Ministry of Agriculture	do	University of California, Berkeley.
Zefi Sandalaki	University of Athens	Physics	Pennsylvania State University.
From Iceland:			
E. Siggeirsson	Agricultural Council, Reykjavik.	Agriculture	North Dakota Agricultural College, Fargo.
Gunnar Sirgurdsson	Almenna byggingafelagid, Reykjavik.	Engineering	University of California, Berkeley.
Gudmundur E. Sigvaldason.	University of Iceland, Reykjavik.	Earth sciences	Geological Survey, Washington, D.C.
From India:			
Gangadhar V. Bhide	University of Bombay	Chemistry	Harvard University.
M. K. Gharpurey	National Chemical Laboratory, Poona.	do	Johns Hopkins University.
Govind Vishnu Joshi	Wilson College, Bombay	Biology	University of Southern California, Los Angeles.
Ajit Kumar Maiti	Indian Council of Medical Research.	Medical science	University of Michigan.
Sivatosh Mookerjee	Presidency College, Calcutta.	do	Rockefeller Institute, New York.
Uttam Prakash	Birbal Sahni Institute of Paleobotany, Lucknow.	Biology	Harvard University.
Arun Kumar Saha	Calcutta University	Engineering	Pennsylvania State University.
From Indonesia:			
Koen Han Gan [1]	University of Indonesia	Biology	University of California, Berkeley.
Robt. T. Pang	do	Medical science	Mount Sinai Hospital, New York.
From Iran:			
H. Parnianpour	University of Tehran	Physics	University of Rochester.
Samad Vojdani	do	Agriculture	University of California, Berkeley.

[1] Returned home.
[2] Expected to arrive later.

AWARDEES——VISITING RESEARCH SCIENTISTS' PROGRAM (WORLDWIDE SCIENTISTS RESEARCH PROJECT)—continued

	Home institution	Field of study	U.S. assignment
From Iraq:			
Youssef Al-Attar	University of Baghdad	Chemistry	University of Minnesota.
Ghazi Hamdi	do	do	University of Wisconsin.
Jamil Malaika [2]	do	Engineering	Washington State University, Pullman.
From Israel:			
Martin Halmann	Weizmann Institute, Rehovoth.	Chemistry	Brookhaven National Laboratory, Upton, N.Y.
Zehara Hershenzon	Agricultural Research Station, Rehovoth.	Agriculture	University of Minnesota.
Zeew Naveh	do	do	University of California, Berkeley.
Israel Navot	Israel Institute of Technology, Haifa.	Engineering	Brooklyn Polytechnic Institute.
From Italy:			
Guilio Cesare Emaldi	Lodi Experimental Institute.	Agriculture	Cornell University.
Fabio Ferrari	University of Padua	Physics	Lawrence Radiation Laboratory, Universi y of California, Berkeley.
M. Ferro-Luzzi	University of Rome	do	University of California, Berkeley.
Ettore Fiorini	University of Milan	do	Duke University.
Teresa Fortini	Observatory of Rome	Astronomy	High Altitude Observatory, Boulder, Colo. (University of Colorado).
Roberto Moccia	University of Naples	Chemistry	University of Chicago.
Nello M. Onesto	do	Engineering	Massachusetts Institute of Technology.
Alberto M. Simonetta	University of Firenze	Biology	Smithsonian Institution of Washington.
Giuseppe Zerbi	Polytechnic Institute of Milan.	Chemistry	University of Minnesota.
From Japan:			
Yoshio Goto	Tohoku University	Medical science	Medical Research Institute, Philadelphia.
Hidenori Hasimoto	Kyoto University	Engineering	Johns Hopkins University.
Yukio Kurita	Nagoya University	Chemistry	Duke University.
Junzo Nakano	Tokyo University	do	Syracuse University.
Hisashi Tanaka	do	Engineering	Brown University.
Gaisi Takeuti	do	Mathematics	Princeton University.
Y. Watanabe	Tohoku University	Biology	California Institute of Technology, Pasadena.
From Korea:			
Joon Hee Rho	Sungkyunkwan University, Seoul.	do	Do.
Young Nok Kim	Seoul University	Physics	University of Washington.
From Lebanon:			
Joseph M. Butros	American University of Beirut.	Medical science	California Institute of Technology.
Nicola N. Khuri	do	Physics	The Institute for Advanced Study, Princeton.
From Malaya:			
Han-Chao Huang [1]	University of Malaya	do	University of California, Berkeley.
From the Netherlands:			
Gustaaf Blaak	State Agricultural University of the Netherlands.	Agriculture	Boyce Thompson Institute for Plant Research. Yonkers, N.Y.
Pieter Eykhoff	Delft Technical University	Engineering	University of California, Berkeley.
C. van der Leun	University of Utrecht	Physics	California Institute of Technology, Pasadena.
Arend W. Noltes	Polak's Frutal Works, Inc., Amersfoort.	Chemistry	Massachusetts Institute of Technology.
From New Zealand:			
John H. Darwin	Department of Scientific and Industrial Research, Wellington.	Mathematics	University of Michigan.
David Edgar	Animal Research Station, Ruakura.	Biology	New York State Veterinary College, Cornell University.
Bruce Penfold	Canterbury University	Chemistry	Harvard University.
Robert Pilgrim	do	Biology	California Institute of Technology, Pasadena.

[1] Returned home.
[2] Expected to arrive later.

AWARDEES——VISITING RESEARCH SCIENTISTS' PROGRAM (WORLDWIDE SCIENTISTS RESEARCH PROJECT)—continued

	Home institution	Field of study	U.S. assignment
From Norway:			
K. Apeland	Bonde & Co., Oslo	Engineering	University of California, Berkeley.
Jan Reidar Getz	Norwegian Ship Research Institute.	do	David Taylor Model Basin.
Arne Reitan	Norwegian Institute of Technology, Trondheim.	Physics	Cornell University.
R. Sundby	University of Oslo	Agriculture	University of California, Riverside.
From Pakistan:			
C. M. Aslam [2]	Agriculture Ministry of Pakistan.	do	Indiana University.
A. Q. M. B. Karim	Dacca University	do	University of California, Davis.
Mohammed Maqsood	Veterinary College, Lahore	Biology	Michigan State University, East Lansing.
S. H. Z. Naqvi [2]	Karachi University	Agriculture	The Connecticut Agricultural Experiment Station, New Haven.
From Peru:			
Isaac Nito Girón	Cerro de Pasco Corp., La Oroya.	Chemistry	National Bureau of Standards.
Fernando de las Casas.[2]	National University of Mining Engineering, Lima.	Earth sciences	University of Wisconsin.
From the Philippines:			
A. Carañgal	University of the Philippines.	Agriculture	The Ohio State University.
V. Tantengco	do	Medical science	University of Wisconsin.
From South Africa:			
Maurice Kaplan	Council for Science and Industrial Research, Capetown.	Engineering	National Bureau of Standards.
J. H. N. Loubser [1]	University of Orange Free State, Bloemfontein.	Physics	Columbia University.
Adolf Lutsch	Council for Science and Industrial Research, Capetown.	do	Brown University.
Stanley John Powell	University of Natal	Medical science	Tulane University School of Medicine.
Alistair Stephen [1]	University of Capetown	Chemistry	University of Minnesota.
From Spain:			
Antonio Roig	University of Madrid	do	Massachusetts Institute of Technology.
Eduardo Vioque, P	Fat and Derivatives Institute, Sevilla.	do	Hormel Institute, University of Minnesota, Austin.
From Sweden:			
Olof Beckman	University of Uppsala	Physics	University of California, Berkeley.
Göran Claeson	do	Chemistry	Do.
Börje A. Norén	do	Biology	University of Wisconsin, College of Agriculture.
Ernst L. Thal	State Veterinary Medical Institute, Stockholm.	do	University of California.
From Taiwan:			
T. M. Lai	Taiwan Sugar Experiment Station.	Agriculture	Michigan State University, East Lansing.
Keh Chi Ling	do	do	Louisiana State University.
S. C. Sung	National Taiwan University.	Biology	Marquette University, School of Medicine.
From Thailand:			
S. Rohitayodhin	Thai Red Cross Society Science Section, Bangkok.	Medical science	University of Pittsburgh, Graduate School of Public Health.
Sathit Tandanand	Royal Department of Mines, Bangkok.	Earth sciences	Pennsylvania State University, College of Mineral Industries.
From Turkey:			
Resan Pakkal	University of Istanbul	Chemistry	Columbia University.
Mustafa N. Şişli	University of Ankara	Agriculture	University of Minnesota, Institute of Agriculture.
V. L. Ulugöl	Technical University, Istanbul.	Engineering	University of Michigan.
From Uruguay:			
Marcos Besson	Department of Agriculture, Extension Division.	Agriculture	Iowa State College, Ames.
From Vietnam:			
Le Xuan Chat	University of Saigon	Medical science	New England Center Hospital, Boston.
Đỗ Ba Khê	do	Physics	University of Wisconsin.

[1] Returned home.
[2] Expected to arrive later.

TABLE A5–4

STATISTICAL REPORT ON FULBRIGHT AND SMITH-MUNDT APPLICATIONS (FOREIGN NATIONALS), ANNUAL SUMMARY REPORT 1959

Country	Initial estimated quotas	Applications received	Grantees receiving awards	Not recommended	Transferred to other programs	Withdrawn	Not selected	Pending D/S action	Pending CBC action
Argentina	12	14	4	6	0	3	0	1	0
Australia	20	27	24	0	0	3	0	0	0
Austria	14	17	12	2	1	2	0	0	0
Belgium	18	11	9	0	0	2	0	0	0
Bolivia [1]	0	10	3	7	0	0	0	0	0
Burma	4	1	0	0	1	0	0	0	0
Brazil	18	3	3	0	0	0	0	0	0
Chile	0	6	6	0	0	0	0	0	0
Colombia	8	1	1	0	0	0	0	0	0
Denmark	16	15	14	0	1	0	0	0	0
Ecuador	4	6	4	2	0	0	0	0	0
Finland	15	18	16	0	0	0	1	0	1
France	45	65	50	3	7	5	0	0	0
Germany	40	51	48	2	0	1	0	0	0
Greece	4	3	2	1	0	0	0	0	0
India	8	10	8	0	0	0	1	1	0
Iraq	0	1	0	0	0	1	0	0	0
Ireland	0	1	1	0	0	0	0	0	0
Israel	5	10	5	2	1	2	0	0	0
Italy	44	56	45	1	0	10	0	0	0
Japan	54	84	76	2	0	5	1	0	0
Netherlands	20	22	17	1	0	3	0	1	0
New Zealand	5	6	4	1	0	1	0	0	0
Norway	30	19	16	1	0	2	0	0	0
Pakistan	2	5	2	3	0	0	0	0	0
Paraguay	6	1	1	0	0	0	0	0	0
Peru	6	9	5	4	0	0	0	0	0
Philippines	2	5	3	1	1	0	0	0	0
Sudan [1]	1	1	0	0	0	1	0	0	0
Sweden [1]	0	3	2	0	0	1	0	0	0
Taiwan	5	3	2	1	0	0	0	0	0
Thailand	0	3	2	1	0	0	0	0	0
Turkey	3	11	2	4	0	2	0	1	2
Union of South Africa [1]	0	1	1	0	0	0	0	0	0
United Kingdom	85	116	106	2	0	8	0	0	0
Total	494	615	494	47	12	52	3	4	3

[1] Smith-Mundt countries.

TABLE A5–5

FULBRIGHT PROGRAM (CIEP): SUMMARY OF THE COMMITTEE'S ACTIONS ON AMERICAN CANDIDATES, 1959–60 SPRING AND FALL COMPETITIONS

	Total applications received	Applications sent other agencies, withdrawn, transferred, late or pending review	Applications recommended by CBC	Withdrawals after CBC recommendation	Pending placement or selection	Not selected or placed	Selected by Board of Foreign Scholarships	Award accepted	Award declined
Argentina	24	3	13	0	3	5	5	5	0
Australia	63	1	36	1	0	14	21	19	2
Austria	54	2	18	2	0	6	10	10	0
Belgium	36	1	14	1	0	6	7	7	0
Brazil	18	1	11	4	0	2	5	5	0
Burma	22	6	8	0	1	1	6	5	1
Chile	30	0	22	2	1	5	14	14	0
Colombia	13	4	5	1	1	0	3	3	0
Denmark	63	4	24	6	0	4	14	14	0
Ecuador	9	2	7	0	1	1	5	5	0
Finland	35	4	23	3	1	5	14	13	1
France	150	5	58	7	8	12	31	29	2
Germany	178	4	67	4	7	25	31	31	0
Greece	27	1	13	0	0	6	7	7	0
Iceland	3	2	1	0	0	1	0	0	0
India	100	7	62	12	2	17	31	27	4
Iran	24	3	16	3	8	1	4	4	0
Ireland	25	0	14	0	2	8	4	4	0
Israel	30	3	18	1	0	9	8	8	0
Italy	146	12	52	5	2	8	37	35	2
Japan	85	2	38	6	1	8	23	23	0
Netherlands	54	4	25	6	0	8	11	11	0
New Zealand	20	0	14	0	0	5	9	9	0
Norway	44	2	15	1	1	4	9	9	0
Pakistan	67	8	43	7	8	6	22	18	4
Paraguay	2	1	1	0	0	0	1	1	0
Peru	33	2	24	5	1	3	15	15	0
Philippines	29	2	17	0	3	7	7	6	1
Taiwan	23	3	11	0	6	0	5	5	0
Thailand	17	0	13	0	1	8	4	3	1
Turkey	23	4	14	3	6	2	3	3	0
United Kingdom	230	15	39	5	5	10	19	17	2
United Kingdom special	27	2	12	1	2	5	4	2	2
United Kingdom colonies	34	0	23	7	1	7	8	8	0
Other	3	2	0	0	0	0	0	0	0
Total	1,740	112	771	93	72	209	397	375	22

TABLE A5–6

FULBRIGHT PROGRAM (CIEP): DISTRIBUTION OF RECOMMENDED CANDIDATES (U.S. CITIZENS) FOR LECTURING AND RESEARCH (INCLUDING ALTERNATES) BY GROUPED DISCIPLINES—1959–60 PROGRAMS

Country	Humanities			Social sciences			Natural sciences			Education			Total		
	Lecturing	Research	Total	Lecturing	Research	Total	Lecturing	Research	Total	Lecturing	Research	Total	Lecturing	Research	Total
Argentina	3	2	5	5	0	5	1	1	2	1	0	1	10	3	13
Australia	4	1	5	6	3	9	7	11	18	3	1	4	20	16	36
Austria	5	7	12	1	0	1	3	1	4	0	1	1	9	9	18
Belgium	3	4	7	1	0	1	2	4	6	0	0	0	6	8	14
Brazil	4	1	5	0	2	2	2	2	4	0	0	0	6	5	11
Burma	1	0	1	3	1	4	0	0	0	3	0	3	7	1	8
Chile	7	0	7	4	3	7	6	0	6	2	0	2	19	3	22
Colombia	5	0	5	0	0	0	0	0	0	0	0	0	5	0	5
Denmark	2	4	6	5	2	7	3	7	10	0	1	1	10	14	24
Ecuador	1	1	2	1	1	2	3	0	3	0	0	0	5	2	7
Finland	6	3	9	4	1	5	6	3	9	0	0	0	16	7	23
France	13	13	26	8	3	11	10	8	18	0	3	3	31	27	58
Germany	22	14	36	8	2	10	11	6	17	2	2	4	43	24	67
Greece	8	4	12	0	1	1	0	0	0	0	0	0	8	5	13
Iceland	0	0	0	1	0	1	0	0	0	0	0	0	1	0	1
India	15	7	22	10	9	19	7	4	11	7	3	10	39	23	62
Iran	5	0	5	1	0	1	6	0	6	4	0	4	16	0	16
Ireland	4	2	6	2	1	3	4	1	5	0	0	0	10	4	14
Israel	5	2	7	1	1	2	4	5	9	0	0	0	10	8	18
Italy	9	12	21	8	5	13	5	10	15	3	0	3	25	27	52
Japan	9	9	18	6	2	8	6	6	12	0	0	0	21	17	38
Netherlands	6	5	11	3	2	5	1	6	7	2	0	2	12	13	25
New Zealand	0	0	0	1	2	3	1	7	8	0	3	3	2	12	14
Norway	1	3	4	3	3	6	0	5	5	0	0	0	4	11	15
Pakistan	7	3	10	6	3	9	9	1	10	14	0	14	36	7	43
Paraguay	0	0	0	1	0	1	0	0	0	0	0	0	1	0	1
Peru	5	1	6	5	3	8	8	0	8	2	0	2	20	4	24
Philippines	6	0	6	6	3	9	1	0	1	1	0	1	14	3	17
Taiwan	3	1	4	2	0	2	5	0	5	0	0	0	10	1	11
Thailand	3	1	4	0	2	2	2	1	3	3	1	4	8	5	13
Turkey	1	0	1	4	1	5	2	0	2	6	0	6	13	1	14
United Kingdom	11	8	19	5	3	8	6	3	9	2	1	3	24	15	39
United Kingdom special	0	1	1	0	0	0	0	0	0	8	3	11	8	4	12
United Kingdom colonial	0	4	4	2	5	7	2	8	10	2	0	2	6	17	23
Total	174	113	287	113	64	177	123	100	223	65	19	84	475	296	771

TABLE A5–7

STATISTICAL REPORT ON 1959–60 FULBRIGHT AND SMITH-MUNDT APPLICATIONS (FOREIGN NATIONALS), JAN. 1 TO DEC. 31, 1959

Country	Quota	Applications received	Awards	Not selected	Withdrawn after recommendation	Withdrawn before recommendation	No dollar support	No travel grant available	Transfer to other categories	Other	Pending recommendation
Africa:											
Sierra Leone		1	1								
Sudan	1	1			1						
Tunisia		1	1								
South Africa	1	1	1								
Total	2	4	3		1						
Asia and Pacific:											
Australia	20	28	22	1	1			4			
China	13	26	13		1	5	7				
India	8	26	16	1	3	3					3
Japan	80	88	84			1	1			2	
New Zealand	5	6	6								
Pakistan	3	7	4				3				
Philippines	6	1	1								
Total	135	182	146	2	5	9	11	4		2	3
Europe:											
Austria	11	11	10							1	
Belgium	7	7	7								
Denmark	14	10	9			1					
Finland	16	25	21		3					1	
France	45	62	46		4	3	6		3		
Germany	43	55	50		1	2				2	
Greece	4	4	4								
Iceland		1	1								
Ireland	2	10	6				2		2		
Italy	50	46	30		1	3	7		3		2
Netherlands	11	16	12		1	1		2			
Norway	20	17	14		1		2				
Spain	1	3	3								
Sweden		4	3				1				
United Kingdom	100	127	122		2	2			1		
Total	324	398	338		13	12	18	2	9	4	2

Latin America:											
Argentina	4	8	8								
Brazil	11	12	10		1				1		
Chile	7	8	7		1						
Colombia	1	1			1						
Cuba	2	2			1			1			
Mexico		1	1								
Panama	1	1	1								
Nicaragua		1					1				
Peru	8	15	10			1	1			1	2
Uruguay		1	1								
Venezuela	1	1	1								
Total	35	51	39		4	1	2	1	1	1	2
Near East:											
Lebanon		1	1								
Iran	8	12	8			1	1	1			1
Israel	3	8	3		1			4			
Turkey	3	7	5				1				1
Total	14	28	17		1	1	2	5			2
Grand total	510	663	543	2	24	23	33	12	10	7	9

TABLE A5–8

ANALYSIS BY COUNTRY OF SOURCES OF FINANCIAL SUPPORT SUPPLEMENTARY TO TRAVEL GRANTS TO 1959–60 FOREIGN SCHOLARS

In the column "U.S. Government maintenance grants" the number in parentheses indicates the number of scholars receiving such grants

Country	Number of grantees	U.S. Government maintenance grants	U.S. Private funds			U.S. Government agency funds	Foreign funds	Total
			Institutions	Foundations	Funds and relatives			
Argentina	8	$14,400 (6)	$7,750	$6,500				$28,650
Australia	22		108,266	5,000			$22,325	135,591
Austria	10	3,240 (2)	20,600		$1,450			25,290
Belgium	7		25,000				7,600	32,600
Brazil	10	26,280 (8)	10,100	4,200				40,580
Chile	7	16,860 (5)	4,300				3,500	24,660
Denmark	9		42,950				1,000	43,950
Finland	21	36,360 (12)	21,315	13,000			4,520	75,195
France	46	12,600 (9)	125,050	4,000	400		39,486	181,536
Germany	50		233,772	6,600			11,128	251,500
Greece	4	4,320 (3)	5,000					9,320
Iceland	1	2,160 (1)						2,160
India	16	31,680 (11)	25,050					56,730
Iran	8	8,280 (3)	7,000				14,600	29,880
Ireland	6	1,800 (1)	2,0550	4,000				26,350
Israel	3		19,560				1,800	21,360
Italy	30		59,725	25,000			38,460	123,185
Japan	84	38,880 (14)	324,426	30,560		$5,700	2,400	401,966
Lebanon	1	1,000 (1)					6,200	7,200
Mexico	1	3,240 (1)	1,500					4,740
Netherlands	12		21,250				22,230	43,480
New Zealand	6		31,439					31,439
Norway	14		22,450				31,805	54,255
Pakistan	4	10,440 (3)	3,600					14,040
Panama	1	3,600 (1)						3,600
Peru	10	31,680 (9)	3,000				400	35,080
Philippines	1	2,160 (1)						2,160
Republic of China	13	39,180 (12)	6,000	6,500				51,680
Sierra Leone	1	3,600 (1)	2,500					6,100
Spain	3		24,350					24,350
Sweden	3	10,800 (3)	1,500				1,600	13,900
Tunisia	1	4,320 (1)	6,000					10,320
Turkey	5	17,000 (5)						17,000
Union of South Africa	1	1,800 (1)		4,800				6,600
United Kingdom	122		636,051	6,500	400	3,000	29,064	675,015
Uruguay	1	1,080 (1)	2,500					3,580
Venezuela	1	3,600 (1)						3,600
Total	543	330,360 (116)	1,822,554	116,660	2,250	8,700	238,118	2,518,642

TABLE A5-9

ACADEMIC FIELDS OF 1959-60 GRANTEES (FOREIGN NATIONALS)

The social sciences, humanities, and education

	Research	Lecturing	Total
Anthropology and archeology	2		2
Architecture	1	4	5
Art	3	2	5
Dramatic arts		1	1
Economics and business administration	14	5	19
Education	3	1	4
Geography	1	4	5
Government		1	1
History	8	6	14
Language and literature	23	28	51
Law	8	6	14
Library science	2		2
Music	1		1
Oriental studies		1	1
Philosophy and religion	4	9	13
Political science	6	1	7
Psychology	9	2	11
Social work	1		1
Sociology	2	2	4
Total	88	73	161

The agricultural and biological sciences

Agricultural sciences	11		11
Anatomy	1	3	4
Biochemistry	22	1	23
Biophysics	1		1
Dentistry	5	1	6
Medicine	74	5	79
Microbiology	14		14
Pathology	2		2
Pharmacology	10	2	12
Physiology	12	1	13
Plant science	4		4
Zoology	4	1	5
Total	160	14	174

The physical sciences

Astronomy and astrophysics	9	1	10
Chemistry	76	3	79
Crystallography	2		2
Engineering	19	3	22
Geology	10	3	13
Geophysics	1	1	2
Mathematics and mathematical statistics	21	12	33
Oceanography	2		2
Physics	41	4	45
Total	181	27	208

TABLE A5–10

ANTICIPATED LENGTH OF STAY

[1959–60 grantees compared with 1953–54 grantees]

Tenure in months	Number of scholars	
	1959–60	1953–54
2	1	
3	45	61
4	13	40
5	15	18
6	36	63
7	6	6
8	14	8
9	43	31
10	98	155
11	5	2
12	263	84
Total	543	468

TABLE A5–11

AGE DISTRIBUTION BY DECADES

[1959–60 grantees compared with 1953–54 grantees]

Decades	1959–60 scholars	1953–54 scholars
20 to 30 years	110	63
30 to 40 years	252	179
40 to 50 years	118	157
50 to 60 years	47	59
60 to 70 years	12	10
70 to 80 years	2	
No information	2	
Total	543	468

TABLE A5–12

NUMBER OF WOMEN RECEIVING GRANTS

Country	1959–60	1953–54
Argentina	2	
Australia	1	
Brazil	2	
Chile	1	
Denmark	1	1
Finland	4	2
France	11	6
Germany	5	7
Italy	2	3
Netherlands	2	
Peru	2	
Republic of China	2	
United Kingdom	8	14
Total	43	33

TABLE A5–13

INSTITUTIONAL AFFILIATIONS AND MEANS OF SUPPORT OF FOREIGN SCHOLARS

This chart does not include the scholars who have extended their stay. The number of extended scholars and their dollar support from their host institutions are included in table 15.

Col. (1) indicates the location of scholars by State and institution. The total number in each State are in the parentheses immediately after the name of the State. The size of the universities and colleges are indicated by the following symbols:

A—those with enrollments under 1,000.
B—those with enrollments between 1,000 and 5,000.
C—those with enrollments between 5,000 and 10,000.
D—those with enrollments over 10,000.

X indicates a research institution which has no university affiliation.

The number in parentheses following the State indicates the total number in the State.

Col. (2) gives the total number who consider this institution their major affiliation. A small percentage are jointly sponsored by 2 institutions. The figures do not include both institutions in such cases.

Col. (3) shows the number at each institution supported by the institution, by Smith-Mundt maintenance grants, and by other means. The support of many scholars comes from more than 1 source.

State and institution (1)	Total number of scholars (2)	Means of support (3)		
		Institutional support	S–M maintenance grants	Other support
Alabama (2):				
University of Alabama (D)	2	2		
Alaska (1):				
University of Alaska (B)	1	1		
Arizona (1):				
University of Arizona (D)	1		1	
Arkansas				
California (85):				
University of California (D):				
Berkeley	20	14	2	5
Davis	4	2		2
Lick Observatory	1	1		
Los Angeles	17	11	3	4
San Francisco	3	1	2	
Scripps Institute of Oceanography	3	1	2	
California Institute of Technology (B)	11	10		2
City of Hope Medical Center, Duarte (X)	1	1		
Claremont Graduate School (A)	1			1
LaVerne College (A)	1	1		
San Diego Zoological Gardens (X)	1	1		
University of Southern California (D)	7	3	1	3
Stanford University (C)	15	8	5	2
Colorado (4):				
University of Colorado (D)	3	1	1	1
Colorado School of Mines (B)	1	1		
Connecticut (18):				
University of Connecticut (D)	1	1		
Yale University (C)	17	11	4	2
Delaware (1):				
Delaware State Hospital, Farnhurst (X)	1	1		
District of Columbia (14):				
American University (C)	2		2	
Carnegie Institution (X)	1	1		
Catholic University (B)	3	1	2	
Dumbarton Oaks Research Library (X)	1	1		
Folger Shakespeare Library (X)	3	3		
Georgetown University (C)	1		1	
George Washington University (D)	3	2		1
Florida (3):				
University of Florida (D)	1	1		
Florida State University (C)	2	2	1	
Georgia (2):				
Emory University (B)	2	1	1	
Hawaii				
Idaho				
Illinois (54):				
University of Chicago (C)	20	10	8	4
Illinois Institute of Technology (C)	2	1	1	
University of Illinois (D)	23	17	4	7
Loyola University (C)	1	1		
Northwestern University (D)	8	7	1	
Indiana (15):				
University of Indiana (D)	7	4	3	
University of Notre Dame (C)	3	3	1	
Purdue University (D)	5	4	1	

INTERNATIONAL AFFILIATIONS AND MEANS OF SUPPORT OF FOREIGN SCHOLARS—Continued

State and institution (1)	Total number of scholars (2)	Means of support (3)		
		Institutional support	S–M maintenance grants	Other support
Iowa (8):				
Drake University (C)	1			1
Iowa State University (C)	3	3		
State University of Iowa (D)	4	4		
Kansas (1):				
University of Kansas (C)	1	1		
Kentucky				
Louisiana (6):				
Louisiana State (D)	1			1
Tulane University (C)	5	4	2	
Maine (2):				
Bowdoin College (A)	2	2		2
Maryland (14):				
Johns Hopkins University (C)	8	5	2	3
University of Maryland (D)	3	1	2	
National Institutes of Health (X)	3		1	2
Massachusetts (62):				
Boston University (D)	6	2	2	1
Brandeis University (B)	2	2		
Clark University (B)	1	1		1
Harvard University (D)	31	17	6	9
Massachusetts Institute of Technology (C)	19	15	1	5
Radcliffe College (B)	2	1		1
Tufts University (B)	1	1		
Michigan (20):				
Edsel B. Ford Institute (X)	1	1		
Kalamazoo College (A)	1	1		
Merrill-Palmer School (A)	1	1		1
University of Michigan (D)	15	8	4	5
Michigan State University (D)	1	1		
Wayne State University (D)	1	1		
Minnesota (21):				
Carleton College (B)	1	1		
Mayo Foundation (X)	3	1	1	1
University of Minnesota (D)	17	11	4	5
Mississippi (1):				
Mississippi State University (B)	1	1	1	
Missouri (7):				
University of Missouri (D)	1			1
Washington University (D)	6	5	1	
Montana				
Nebraska (2):				
University of Nebraska (D)	1	1		
Municipal University of Omaha (C)	1	1	1	
Nevada				
New Hampshire (2):				
Dartmouth College (B)	2	2		
New Jersey (23):				
Institute for Advanced Study (A)	17	17		1
Princeton Theological Seminary (A)	1	1		1
Princeton University (B)	3	3		
Rutgers University (D)	2	1	1	
New Mexico				
New York (72):				
University of Buffalo (D)	4	4		
City College of New York (D)	2	1	1	
Columbia University (D)	26	11	9	8
Cornell University (D)	13	11	2	1
Yeshiva University (D)—Einstein College of Medicine	1	1		
Fordham University (C)	2	2		
Long Island University (B)	1	1		
New York University (D)	11	8	1	3
Polytechnic Institute of Brooklyn (C)	1		1	
University of Rochester (C)	5	3	2	1
Rockefeller Institute (A)	2	2		
Sloan-Kettering Institute (X)	2	1		2
State University of New York (D)	2	2		
North Carolina (9):				
A. & T. College of North Carolina (B)	1	1	1	
Duke University (C)	4	3	3	
University of North Carolina (C)	4	4		
North Dakota				

INTERNATIONAL AFFILIATIONS AND MEANS OF SUPPORT OF FOREIGN SCHOLARS—Continued

State and institution (1)	Total number of scholars (2)	Means of support (3)		
		Institutional support	S–M maintenance grants	Other support
Ohio (6):				
Cleveland Clinic (X)	1	1		
Oberlin College (B)	1	1		
Ohio State University (D)	2	2		
Western College for Women (A)	1	1		
Western Reserve University (C)	1			1
Oklahoma (1):				
University of Oklahoma (D)	1		1	
Oregon (1):				
University of Oregon (C)	1	1		
Pennsylvania (29):				
Bucknell University (B)	1	1		
Carnegie Institute of Technology (C)	5	2	2	
Haverford College (A)	1	1		
Lafayette College (B)	1	1		
University of Pennsylvania (D)	15	9	2	6
Pennsylvania State University (D)	3	1	2	
University of Pittsburgh (D)	3	3		
Puerto Rico (1):				
University of Puerto Rico (D)	1			1
Rhode Island (5):				
Brown University (B)	4	4		
Rhode Island School of Design (A)	1		1	
South Carolina (1):				
University of South Carolina (C)	1	1		
South Dakota				
Tennessee (3):				
Oak Ridge Institute of Nuclear Studies (X)	3		1	2
Texas (12):				
Baylor University (C)	1			1
Rice Institute (B)	2	2		
University of Texas (D)	7	7	1	
Texas Technological College (C)	1		1	
Trinity College (B)	1	1		1
Utah (5):				
University of Utah (D)	5	2	1	2
Vermont (3):				
Middlebury College (B)	1	1		
University of Vermont (B)	2	2	1	1
Virginia (3):				
University of Richmond (B)	1			1
University of Virginia (D)	1	1		
William & Mary College (C)	1			1
Washington (9):				
University of Washington (D)	8	6	2	2
Washington State University (C)	1	1		
West Virginia				
Wisconsin (14):				
Lawrence College (A)	1	1		
Marquette University (D)	2		1	1
University of Wisconsin (D)	11	7	4	
Wyoming				
Total	543	363	116	112

TABLE A5–14

NUMBER OF INSTITUTIONS BY SIZE AND KIND IN RELATION TO NUMBER OF VISITORS AND THEIR MEANS OF SUPPORT

Col. (2) gives the number of institutions listed in table A5–13 in each of the specified categories.
Col. (3) indicates the total number of visitors received by each kind of institution with the breakdown to show the numbers engaged in research (R) and teaching (L).
Col. (4) shows the major sources of financial support. In many instances a scholar receives partial support from the institution as well as some Smith-Mundt per diem or support from other sources. Therefore the totals in cols. (3) and (4) do not tally.

Kind and size of institution (1)	Number of institutions (2)	Number of scholars (3)			Means of support (4)		
		R	L	Total	Institutional	Smith-Mundt	Other
A institutions under 1,000 enrollment	12	24	6	30	28	1	6
B institutions between 1,000 and 5,000	24	29	18	47	41	6	8
C institutions between 5,000 and 10,000	28	93	33	126	81	38	19
D institutions over 10,000	46	263	57	319	202	68	71
X research institutions (nonuniversity)	11	21		21	11	3	8
Total	124	429	114	543	363	116	112

TABLE A5–15

DOLLAR SUPPORT OF AMERICAN EDUCATIONAL INSTITUTIONS TO VISITING FULBRIGHT AND SMITH-MUNDT SCHOLARS DURING 1959–60

State and institution	1959–60 scholars		Extended scholars		Totals by institution		Totals by State	
	Number supported	Amount of support	Number supported	Amount of support	Number supported	Amount of support	Number supported	Amount of support
Alabama							2	$9,400
University of Alabama	2	$9,400			2	$9,400		
Alaska							1	9,900
University of Alaska	1	9,900			1	9,900		
California							75	410,107
University of California:								
Berkeley	15	107,509	3	$19,296	18	126,805		
Davis	2	9,090			2	9,090		
Lick Observatory	1	5,496			1	5,496		
Los Angeles	11	68,438	4	14,388	15	82,826		
San Francisco	1	4,800			1	4,800		
La Jolla (Scripps Institute)	1	3,600			1	3,600		
California Institute of Technology	10	50,650	6	38,800	16	89,450		
City of Hope Medical Center	1	4,200			1	4,200		
Huntington Library and Art Gallery	1	1,000			1	1,000		
LaVerne College	1	3,200			1	3,200		
San Diego Zoological Gardens	1	2,400			1	2,400		
University of Southern California	4	14,000	2	9,200	6	23,200		
Stanford University	10	52,090	1	1,950	11	54,040		
Colorado							4	17,200
University of Colorado	2	8,000	1	5,300	3	13,300		
Colorado School of Mines	1	3,900			1	3,900		
Connecticut							15	68,160
University of Connecticut	1	1,860			1	1,860		
Yale University	11	51,200	3	15,100	14	66,300		
Delaware							2	11,000
University of Delaware			1	5,000	1	5,000		
Delaware State Hospital	1	6,000			1	6,000		
District of Columbia							8	23,100
Carnegie Institution	1	5,500			1	5,500		
Catholic University	1	3,100			1	3,100		
Dumbarton Oaks Research Library	1	3,000			1	3,000		
Folger Shakespeare Library	3	5,900			3	5,900		
George Washington University	2	5,600			2	5,600		
Florida							4	15,062
University of Florida	1	3,062			1	3,062		
Florida State University	2	6,000	1	6,000	3	12,000		
Georgia							1	3,000
Emory University	1	3,000			1	3,000		

TABLE A5-15—Continued

DOLLAR SUPPORT OF AMERICAN EDUCATIONAL INSTITUTIONS TO VISITING FULBRIGHT AND SMITH-MUNDT SCHOLARS DURING 1959-60—continued

State and institution	1959-60 scholars		Extended scholars		Totals by institution		Totals by State	
	Number supported	Amount of support	Number supported	Amount of support	Number supported	Amount of support	Number supported	Amount of support
Illinois							51	$252,840
University of Chicago	9	$33,550	4	$23,800	13	$57,350		
University of Illinois	18	92,840	8	38,200	26	131,040		
Illinois Institute of Technology	1	4,800	1	5,200	2	10,000		
Loyola University	1	2,550			1	2,550		
Northwestern University	7	42,000	2	9,900	9	51,900		
Indiana							18	96,150
Indiana University	4	21,200	4	19,850	8	41,050		
University of Notre Dame	3	17,800	1	6,000	4	23,800		
Purdue University	4	21,400	2	9,900	6	31,300		
Iowa							7	41,400
Iowa State University	3	14,800			3	14,800		
State University of Iowa	4	26,600			4	26,600		
Kansas							1	3,000
University of Kansas	1	3,000			1	3,000		
Kentucky							1	4,800
University of Louisville			1	4,800	1	4,800		
Louisiana							4	15,500
Tulane University	4	15,500			4	15,500		
Maine							3	11,215
Bowdoin University	2	5,215			2	5,215		
Roscoe B. Jackson Memorial Laboratory			1	6,000	1	6,000		
Maryland							8	34,400
Johns Hopkins University	5	24,500	1	3,750	6	28,250		
University of Maryland	2	6,150			2	6,150		
Massachusetts							65	294,158
Boston University	2	7,800	1	5,500	3	13,300		
Brandeis University	2	10,000			2	10,000		
Clark University	1	400			1	400		
Harvard University	17	72,960	9	39,850	26	112,810		
M.I.T.	17	85,828	11	49,120	28	134,948		
Radcliffe College	1	3,500			1	3,500		
Tufts University	1	4,200	2	9,000	3	13,200		
Wellesley College			1	6,000	1	6,000		
Michigan							17	69,350
Edsel B. Ford Institute	1	6,000			1	6,000		
Kalamazoo College	1	7,000			1	7,000		
Merrill-Palmer School	1	1,000			1	1,000		
University of Michigan	8	35,700	2	6,900	10	42,600		

Michigan State University	1	2,000			1	2,000		
Wayne State University	1	1,050	2	9,700	3	10,750		
Minnesota							18	79,940
Carleton College	1	5,500			1	5,500		
Mayo Foundation	1	3,600			1	3,600		
University of Minnesota	11	49,640	5	21,200	16	70,840		
Mississippi							2	6,500
Mississippi State College	1	500	1	6,000	2	6,500		
Missouri							7	42,500
St. Louis University			1	6,000	1	6,000		
Washington University	5	30,500	1	6,000	6	36,500		
Nebraska							2	9,250
University of Nebraska	1	5,500			1	5,500		
Municipal University of Omaha	1	3,750			1	3,750		
New Hampshire							2	9,500
Dartmouth College	2	9,500			2	9,500		
New Jersey							29	137,064
Institute for Advanced Study	18	79,900	4	19,100	22	99,000		
Princeton Theological Seminary	1	2,000			1	2,000		
Princeton University	3	22,600			3	22,600		
Rutgers University	1	5,000	1	5,464	2	10,464		
Stevens Institute			1	3,000	1	3,000		
New York							65	343,775
University of Buffalo	4	19,800			4	19,800		
City College of New York	1	8,400			1	8,400		
Columbia University	11	50,300	9	58,934	20	109,234		
Cornell University	11	61,370	3	11,446	14	72,816		
Yeshiva University	1	3,000			1	3,000		
Fordham University	2	14,500			2	14,500		
Long Island University	1	4,000			1	4,000		
Memorial Center for Cancer and Allied Diseases	1	1,125	2	8,000	3	9,125		
Montefiore Hospital			1	4,200	1	4,200		
New York University	8	47,400			8	47,400		
University of Rochester	3	15,100			3	15,100		
Rockefeller Institute	2	6,800	3	18,000	5	24,800		
State University of New York	2	11,400			2	11,400		
North Carolina							10	52,050
A. & T. College of North Carolina	1	2,500			1	2,500		
Duke University	3	14,500	1	5,500	4	20,000		
University of North Carolina	4	24,050	1	5,500	5	29,500		
Ohio							9	36,100
University of Cincinnati			1	1,000	1	1,000		
Cleveland Clinic	1	3,600			1	3,600		
Oberlin College	1	5,050			1	5,050		
Ohio State University	2	7,950	2	7,500	4	15,450		
Western College for Women	1	5,000			1	5,000		
Western Reserve University			1	6,000	1	6,000		
Oklahoma							1	3,000
University of Oklahoma			1	3,000	1	3,000		
Oregon							2	10,600
University of Oregon	1	5,200			1	5,200		
Oregon State College			1	5,400	1	5,400		

TABLE A5-15—Continued

DOLLAR SUPPORT OF AMERICAN EDUCATIONAL INSTITUTIONS TO VISITING FULBRIGHT AND SMITH-MUNDT SCHOLARS DURING 1959-60—continued

State and institution	1959-60 scholars		Extended scholars		Totals by institution		Totals by State	
	Number supported	Amount of support	Number supported	Amount of support	Number supported	Amount of support	Number supported	Amount of support
Pennsylvania							27	$148,650
Bucknell University	1	$5,500			1	$5,500		
Carnegie Institute of Technology	2	13,000	1	$16,200	3	29,200		
Haverford College	1	6,000			1	6,000		
Institute for Cancer Research			1	5,000	1	5,000		
Lafayette College	1	5,500			1	5,500		
University of Pennsylvania	9	46,000	4	16,750	13	62,750		
Pennsylvania State University	1	4,500	2	10,700	3	15,200		
University of Pittsburgh	3	13,100			3	13,100		
Swarthmore College			1	6,400	1	6,400		
Rhode Island							5	26,400
Brown University	4	19,400	1	7,000	5	26,400		
South Carolina							1	4,000
University of South Carolina	1	4,000			1	4,000		
Tennessee							2	8,500
University of the South			1	6,000	1	6,000		
University of Tennessee	1	2,500			1	2,500		
Texas							12	49,379
Rice Institute	2	10,900	2	12,000	4	22,900		
University of Texas	7	25,479			7	25,479		
Trinity University	1	1,000			1	1,000		
Utah							3	11,560
University of Utah	2	9,900	1	1,660	3	11,560		
Vermont							3	6,100
Middlebury College	1	1,100			1	1,100		
University of Vermont	2	5,000			2	5,000		
Virginia							1	7,000
University of Virginia	1	7,000			1	7,000		
Washington							8	45,752
University of Washington	6	33,752	1	6,000	7	39,752		
Washington State University	1	6,000			1	6,000		
Wisconsin							11	60,700
Lawrence College	1	3,600			1	3,600		
University of Wisconsin	7	49,050	3	8,050	10	57,100		
Total	[1] 374	1,822,554	133	665,508	507	2,488,062	507	2,488,062

[1] Includes 11 scholars who are affiliated with and receiving dollar support from 2 institutions.

TABLE A5–16

DOLLAR SUPPORT OF AMERICAN PRIVATE FOUNDATIONS AND AGENCIES TO VISITING FULBRIGHT AND SMITH-MUNDT SCHOLARS DURING 1959–60

Foundations and agencies	1959–60 scholars		Extended scholars		Total number of scholars	Dollar support
	Number of grantees	Dollar support	Number of grantees	Dollar support		
American Association of University Women	2	$5,000			2	$5,000
American College of Surgeons	1	4,000			1	4,000
American Federation of Soroptomist Clubs			1	$3,000	1	3,000
Arthritis and Rheumatism Foundation	1	4,500	1	6,500	2	11,000
Asia Foundation	3	9,060	1	2,700	4	11,760
Board of International Missions of the Evangelical and Reformed Church, Philadelphia	1	3,000			1	3,000
James Hudson Brown Memorial Fellowship	1	4,500			1	4,500
Carnegie Corp. of New York	1	4,800			1	4,800
Carnegie Institution of Washington	1	5,000			1	5,000
Max Kade Foundation of New York	1	3,600			1	3,600
Kennedy Foundation	1	4,000			1	4,000
Massachusetts Heart Association			1	4,000	1	4,000
National Council to Combat Blindness, Inc			1	2,500	1	2,500
National Vitamin Foundation	1	5,200			1	5,200
Retina Foundation	1	4,200			1	4,200
Rockefeller Foundation	4	12,300			4	12,300
Sloan Foundation	1	7,000			1	7,000
John Hay Whitney Foundation	6	40,500			6	40,500
Total, 18 foundations and agencies	26	116,660	5	18,700	31	135,360

TABLE A5–17

AMERICAN PRIVATE DOLLAR SUPPORT IN 1959–60 COMPARED WITH SUPPORT IN 1953–54

	1959–60	*1953–54*
American Educational Institutions	[1] $1,822,554	[2] $586,581
	[3] 665,508	
Private foundations	116,660	112,230
American friends	2,250	14,710
Total	2,606,972	713,421

[1] 1959–60 scholars.
[2] Additional support to a few scholars extending their stay is not available.
[3] Extended scholars.

TABLE A5–18

CONFERENCE BOARD COMMITTEE, FULBRIGHT AND SMITH-MUNDT PROGRAMS

VISITING FOREIGN SCHOLARS IN THE UNITED STATES IN LIFE SCIENCES

3-year Period, 1956–57, 1957–58, 1958–59

Country	Biological and agricultural	Medical science	Anthropology	Psychology
Australia	19	5	0	1
Austria	4	4	0	1
Belgium	5	8	0	1
Bolivia	1	0	0	0
Brazil	2	3	1	0
Ceylon	1	0	0	0
Chile	1	0	0	0
Denmark	13	8	0	2
Ecuador	2	0	0	0
Egypt	1	0	0	0
Finland	17	2	0	2
France	25	34	1	0
Germany	40	12	1	2
Greece	1	1	1	0
India	12	1	0	0
Israel	3	1	0	0
Italy	32	23	0	5
Japan	58	17	0	0
Korea	1	1	0	0
Netherlands	21	2	0	2
New Zealand	3	3	0	0
Norway	12	6	2	2
Pakistan	0	0	0	1
Paraguay	0	1	0	0
Peru	2	1	0	0
Philippines	1	0	0	0
Spain	1	0	0	0
Sweden	1	0	0	0
Turkey	1	0	0	0
United Kingdom	51	34	2	4
Uruguay	1	0	0	0
Total	332	167	8	25

NOTE.—The committee cannot supply figures on the total number of applications from foreign scholars in the life sciences, since the committee receives only those which have been approved after screening in the foreign countries.

TABLE A5–19

CONFERENCE BOARD COMMITTEE, FULBRIGHT AND SMITH-MUNDT PROGRAMS

AMERICAN GRANTEES IN LIFE SCIENCES UNDER THE FULBRIGHT ACT

3-year Period, 1956–57, 1957–58, 1958–59

Country	Biological and agricultural	Medical science	Anthropology	Psychology
Argentina	1	0	0	0
Australia	16	1	1	3
Austria	0	1	0	0
Belgium	3	1	0	0
Brazil	0	0	1	0
Burma	0	0	1	0
Ceylon	1	0	0	1
Chile	2	0	1	0
Colombia	0	0	0	0
Denmark	8	1	0	0
Ecuador	1	0	0	0
Egypt	0	0	0	0
Finland	2	1	0	3
France	2	2	0	4
Germany	10	4	0	2
Greece	1	0	0	0
Iceland	0	0	0	0
India	3	4	0	3
Iran	0	1	0	0
Iraq	0	1	0	0
Ireland	1	0	0	0
Israel	3	0	0	0
Italy	6	0	0	6
Japan	9	0	3	1
Netherlands	7	4	0	0
New Zealand	15	1	0	0
Norway	4	5	0	6
Pakistan	0	0	2	0
Peru	4	1	5	0
Philippines	0	0	3	0
Taiwan	0	0	0	0
Thailand	4	0	0	0
Turkey	0	0	0	4
United Kingdom	7	1	1	0
United Kingdom colonies	22	0	0	0
Total	132	29	18	33

TABLE A5–20

CONFERENCE BOARD COMMITTEE, FULBRIGHT AND SMITH-MUNDT PROGRAMS

AMERICAN GRANTEES IN LIFE SCIENCES UNDER THE SMITH-MUNDT ACT

3-year Period, 1956–57, 1957–58, 1958–59

Country	Biological and agricultural	Medical science	Anthropology	Psychology
Brazil	0	0	1	0
Ceylon	0	1	0	0
Guatemala	0	0	2	0
Mexico	5	3	0	1
Nicaragua	0	1	0	0
Turkey	0	0	0	1
Vietnam	1	0	0	0
Total	6	5	3	2

TABLE A5-21

CONFERENCE BOARD COMMITTEE, FULBRIGHT AND SMITH-MUNDT PROGRAMS

APPLICATIONS RECEIVED FROM AMERICANS IN LIFE SCIENCES BY COUNTRY UNDER THE FULBRIGHT ACT

3-year Period, 1956–57, 1957–58, 1958–59

Country	Biological and agricultural	Medical science	Anthropology	Psychology
Argentina	2	0	0	0
Australia	65	2	1	8
Austria	2	12	1	4
Belgium	15	2	1	3
Brazil	0	1	2	0
Burma	0	0	2	0
Ceylon	5	0	0	1
Chile	2	1	2	0
Colombia	1	0	0	0
Denmark	28	5	2	5
Ecuador	3	0	0	0
Finland	6	4	0	4
France	21	13	2	10
Germany	25	9	0	12
Greece	1	0	0	0
India	7	8	2	12
Iran	0	1	0	0
Iraq	3	2	0	0
Ireland	3	0	0	0
Israel	6	1	0	0
Italy	22	7	1	19
Japan	13	0	7	5
Netherlands	23	5	0	6
New Zealand	32	3	1	2
Norway	12	6	0	20
Pakistan	1	1	2	3
Peru	5	1	12	0
Philippines	1	0	5	2
Thailand	8	0	0	0
Turkey	1	0	0	5
United Kingdom	82	46	4	19
United Kingdom colonies	38	4	3	2
Total	433	134	50	142

6. OTHER AGENCIES' EXCHANGE PROGRAMS INVOLVING MEDICAL AND HEALTH-RELATED PERSONNEL

Senator HUMPHREY. Supplementing the preceding information furnished by the National Academy of Sciences-National Research Council are two letters from the Department of Health, Education, and Welfare, and the Department of State, respectively. In the first letter, exchange programs involving the Office of Vocational Rehabilitation and the Communicable Disease Center are listed. In the second letter, the Bureau of International Cultural Relations of the Department of State sets forth information on grants in the health sciences.

(The letters follow:)

OFFICE OF THE SECRETARY,
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
Washington, January 12, 1960.

DEAR MR. CHAIRMAN: I am happy to send you the enclosed reports on item 4 of category 2 entitled "Communicable Disease Center Participation in Exchange and Training Programs in the Field of Health for Fiscal Year 1959" and item 6 of category 2 entitled "Exchange and Training Programs in the Field of Health Sponsored by the Department of Health, Education, and Welfare for Fiscal Year 1959" which you recently requested in your letter concerning U.S. Government-sponsored exchange and training programs.

Sincerely yours,

ROBERT A. KEVAN,
Department Coordinator of International Affairs.

ITEM 4. COMMUNICABLE DISEASE CENTER PARTICIPATION IN EXCHANGE AND TRAINING PROGRAMS IN THE FIELD OF HEALTH FOR FISCAL YEAR 1959

The Communicable Disease Center does not finance exchange and training programs for people from other countries; however, they may attend the center's special courses, "The Principles, Organization, and Practice of Communicable Disease Control and Environmental Aspects of Communicable Disease Control," which are designed especially for health workers from other countries.

They may also attend regularly scheduled short courses which cover the laboratory, epidemiological, and environmental aspects of communicable diseases and their control. In addition to those who attend the special or regularly scheduled courses, arrangements are made for more extended periods—several months to a year—in order that they may work and study in the laboratories on toxicology, insecticidal resistance, and diagnostic laboratory techniques for enteric infections.

Several have received training and experience in the development and production of motion pictures, graphics, and other visual and audiovisual aids. Many have visited the field stations of the center in various parts of the country to observe field methods for studying and investigating vectorborne, diarrheal, and respiratory diseases.

Some have received individual consultations with the various scientists of the center to obtain information on a single item, such as poliomyelitis, vaccination, phage typing, or staphylococcus, or uses for the fluorescent antibody technique.

Others have received more general information on the organization and administration of health programs. For this, the visitors observed not only the center operations, but also those cooperating State and local health agencies.

In fact, all key scientists and technical personnel at the center are involved from time to time in the training of visitors from other countries and aid them in finding the answers to their diverse problems. The center is quite conscious of the magnitude of communicable disease problems in foreign countries as well as here in the United States.

The attached tabular data provide the following information for fiscal year 1959:

Table I—Number of people who have visited the center and the countries from which they come.
Table II—Disciplines represented.
Table III—Sponsors.
Table IV—Length of individual training period showing total days involved.

Also attached are copies of the center's publications "CDC Training Program Bulletin, July 1, 1959, to June 30, 1960" and "CDC Report of Activities, 1958" which you may find helpful in your study.

TABLE I

TRAINEES FROM OTHER COUNTRIES, FISCAL YEAR 1959

Argentina	1	Lebanon	3
Australia	2	Liberia	1
Austria	1	Malaya	1
Belgium	1	Mexico	3
Brazil	7	Mozambique	2
Canada	1	Netherlands	1
Ceylon	4	Nigeria	1
Chile	1	Pakistan	3
Colombia	5	Panama	1
Costa Rica	2	Peru	1
Cuba	1	Philippines	12
Ecuador	1	Poland	3
El Salvador	4	Portugal	1
Formosa	6	South Africa	1
French Equatorial Africa	1	Surinam	3
French West Africa	1	Sweden	1
Germany	1	Switzerland	3
Guatemala	1	Thailand	7
Haiti	1	The West Indies Federation	4
Honduras	3	United Arab Republic	3
India	13	U.S.S.R	1
Indonesia	4	Venezuela	6
Iran	3	Vietnam	8
Italy	2	Yugoslavia	5
Japan	3	Zanzibar	1
Jordan	1		
Korea	5	Total	152

TABLE II

TRAINEES FROM OTHER COUNTRIES BY DISCIPLINES, FISCAL YEAR 1959

Dentist	1	Sanitarians	8
Engineers	28	Scientists	13
Health educator	1	Veterinarians	7
Laboratory personnel	13	Other	2
Librarians	2		
Physicians	77	Total	152

TABLE III

SPONSORS OF TRAINEES FROM OTHER COUNTRIES, FISCAL YEAR 1959

American Bureau Medical Aid to China	1	Medical Library Association	1
American Council on Education	2	Rockefeller Foundation	4
China Medical Board	1	SEATO	1
Foreign Colleges or Universities	1	U.S. Air Force	1
Foreign governments	2	World Health Organization	46
Fulbright	1	Unknown	19
Gulbenkian Foundation	1		
ICA	71	Total	152

TABLE IV

TRAINEES FROM OTHER COUNTRIES, FISCAL YEAR 1959—LENGTH OF TRAINING PERIODS

Training period (days)	Number of trainees	Training period (days)	Number of trainees
1	6	15	8
1¼	1	17	6
1½	2	18	1
2	25	20	7
2½	2	25	1
3	14	25½	1
3½	3	30	8
4	3	32	1
4½	1	33	1
5	11	35	1
6	8	38	1
7	3	60	3
7½	1	64	1
9	2	82	1
10	10	113	1
11	1	172	1
12	14		
14	2	Total trainees	152
		Total training days	2,010

ITEM 6. EXCHANGE AND TRAINING PROGRAMS IN THE FIELD OF HEALTH SPONSORED BY THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE FOR FISCAL YEAR 1959

The only area in this Department which engages directly in exchange and training programs in the field of health is the Office of Vocational Rehabilitation. Other elements of the Department have major responsibilities under the ICA, Smith-Mundt, and Fulbright exchange programs but do not have any programs of their own.

From time to time persons from foreign countries either present themselves or are referred to the Department by other Government agencies or responsible private organizations for information and training. For example, 21 trainees from foreign countries attended radiological health training courses of 2 to 4 weeks' duration at the Public Health Service's Sanitary Engineering Center, Cincinnati, Ohio. The cost of this program which consisted principally of trainee expenses (per diem and travel) was financed by the sponsoring foreign government in each instance.

The Division of Radiological Health, Public Health Service, sent one of its staff members to Mexico City at the request of the Mexican Government where he presented a 1-week training course regarding the nature and control of radiation problems for public health workers.

Both Freedmen's Hospital and St. Elizabeths Hospital have foreign interns, nurses, and graduate students on their staffs. These are employed under civil service rules and regulations which state that such foreigners may be employed when American citizens with the same qualifications are not available.

Attached are three brief summaries of individual fellowships awarded by the Office of Vocational Rehabilitation, which are international in character, and a list of several grants to various organizations concerned with international aspects of vocational rehabilitation.

U.S. GOVERNMENT-SPONSORED EXCHANGE AND TRAINING PROGRAMS

INDIVIDUAL FELLOWSHIPS

Viola Brete Huseth. Awarded a special fellowship to carry out the research project "Community-Sponsored Rehabilitation Facilities: Halfway Houses in England." Miss Huseth is doing her study under the direction of Wesley Allinsmith, Department of Human Development, Graduate School of Education, Harvard University, Cambridge, Mass. Since the information Miss Huseth is seeking is not available in the United States, where halfway houses for mental patients are a fairly new phenomenon, she is doing her work in England. By studying the problems associated with the long-term functioning of halfway

houses, she hopes to provide guideposts which could prove invaluable in more effective functioning in the future. The survey will focus on (1) policy, planning, and finance; (2) physical facilities, locations, and community relationships; (3) house residents—selections and discharge criteria, diagnoses, and readmission rates; (4) house, hospital, and governing staff.

Period: April 1, 1959, to March 31, 1960.

Stipend level: $5,000.

Max D. Steer, Ph. D. Awarded a special fellowship to assist in carrying out the research project "Worldwide Mutual Assistance Program in Speech and Hearing Disorders: Status and Needs." Dr. Steer is doing his study under the direction of H. A. Monroe, head, Speech Department, Purdue University, Lafayette, Ind. The project is being done also under the auspices of the American Speech and Hearing Association. The project will involve (1) collection of information through the distribution of a comprehensive questionnaire to selected research and training centers abroad; (2) personal inspections and conferences in Denmark, Germany, Holland, Switzerland, Italy, Spain, France, and England; (3) conferences with representatives of WHO and UNESCO both in this country and abroad; and (4) conferences with participants of the 11th Congress of the International Association of Logopedics and Phoniatrics.

Period: August 1, 1959, to October 31, 1959.

Stipend level: $975.

NOTE.—Dr. Steer's findings will be referred to in its final report by the Senate Subcommittee on Reorganization and International Organizations.)

Research and demonstration project

	Project dates	Federal support to date
Gallaudet College, Washington, D.C. (No. 467).....	May 1, 1959–Mar. 31, 1965.....	$4,988

Purpose: To study and analyze communicative patterns developed by young deaf persons in order to improve communication techniques in the vocational rehabilitation of the deaf.

GRANTS TO ORGANIZATIONS

Research and demonstration projects

	Project dates	Federal support to date
International Society for the Welfare of Cripples, New York, N.Y. (184).	June 1, 1957–May 31, 1958.....	$5,000

Purpose: To further the development of technical skills and knowledge through the exchange of information concerning rehabilitation—Seventh World Congress—London 1957.

	Project dates	Federal support to date
Excerpta Medica Foundation, New York, N.Y. (280).	Jan. 1, 1958–Dec. 31, 1962.....	$48,000

Purpose: To abstract worldwide publications and reports in the field of rehabilitation and to publish this information periodically.

Research and demonstration projects—Continued

	Project dates	Federal support to date
International Society for the Welfare of Cripples, New York, N.Y. (296).	June 15, 1958–Sept. 30, 1959	$2,860

Purpose: To further the development of technical skills and knowledge through the exchange of information concerning rehabilitation—Pan-Pacific Conference—1958.

	Project dates	Federal support to date
International Society for the Welfare of Cripples, New York, N.Y. (397).	Jan. 1, 1959–Dec. 31, 1960	$10,000

Purpose: To further the development of technical skills and knowledge through the exchange of information concerning rehabilitation—Eighth World Congress.

	Project dates	Federal support to date
American Congress of Physical Medicine and Rehabilitation, Chicago, Ill. (420).	Mar. 1, 1959–Dec. 31, 1960	$7,500

Purpose: To further the development of technical knowledge through the exchange of information concerning rehabilitation—Third International Congress of Physical Medicine—1960.

	Project dates	Federal support to date
World Federation for Mental Health, New York, N.Y. (426).	June 1, 1959–May 31, 1961	$28,500

Purpose: To study attitudes toward mental illness and mental health in diverse cultural and socioeconomic settings in order to develop evaluative methods and techniques needed by communities planning more effective mental health programs.

	Project dates	Federal support to date
International Society for the Welfare of Cripples, New York, N.Y. (536).	Nov. 1, 1959–Oct. 31, 1961	$25,760

Purpose: To establish and staff a World Commission on Research in Rehabilitation.

DEPARTMENT OF STATE,
Washington, December 4, 1959.

DEAR SIR: I enclose the tabulation of grants in health studies made by the Department of State under the International Educational Exchange Service during the 1959 fiscal year, also the estimated cost of these exchanges.

If I can be of further assistance, please let me know.

Sincerely yours,

GERTRUDE G. CAMERON,
Chief, Program Reporting Staff,
Bureau of International Cultural Relations.

DEPARTMENT OF STATE INTERNATIONAL EDUCATIONAL EXCHANGE PROGRAM

GRANTS IN THE HEALTH SCIENCES, JULY 1, 1958–JUNE 30, 1959

To U.S. Citizens To Go Abroad

Field	Total	Students	Lecturers	Specialists	Research scholars
Medicine, general	11	3	4	3	1
Veterinary medicine	4	1	2	1	
Dentistry	1		1		
Psychiatry	2	1	1		
Occupational therapy	2		1		1
Ophthalmology	1			1	
Surgery, general	3		1	2	
Medical sciences, other	16	6	4	3	3
Subtotal	40	11	14	10	5
Bacteriology	6	2	2	1	1
Biochemistry	5	3	2		
Biophysics	1		1		
Pathology	1		1		
Pharmacology	3		2		1
Physiology	7	4	2		1
Agriculture and food chemistry	1				1
Food technology	1		1		
Grand total	65	20	25	11	9

To Foreign Citizens To Come to the United States

Field	Total	Students	Lecturers	Specialists	Teachers	Research scholars	Leaders
Medicine, general	127	92		4		17	14
Nursing	12	8		2	1	1	
Public health	7	2		3			2
Veterinary medicine	3					3	
Dentistry	27	18		4		5	
Pharmacy	11	11					
Psychiatry	5	2				3	
Ophthalmology	4	1				3	
Pediatrics	8	6				2	
Internal medicine	6	3				3	
Gynecology and obstetrics	5	2				3	
Atomic medicine	1					1	
Surgery, general	25	10				14	1
Medical sciences, other	65	26	2	2		35	
Subtotal	306	181	2	15	1	90	17
Anatomy	2			1		1	
Bacteriology	12	2				10	
Biochemistry	37	16				21	
Biophysics	2	1				1	
Genetics	7	2				5	
Nutrition and metabolism	2	2					
Pathology	9	2	2			5	
Pharmacology	3					3	
Physiology	8					8	
Atomic biology	1					1	
Agricultural and food chemistry	3	1				2	
Food technology	5	5					
Grand total	397	212	4	16	1	147	17

NOTE.—Estimated cost:

U.S. citizens	$240,000
Foreign citizens	720,000
Total	960,000

7. THE U.S. PUBLIC HEALTH SERVICE AND INTERNATIONAL HEALTH

Senator HUMPHREY. It is clear from many references in the previous sections that a cornerstone of U.S. health efforts overseas is the U.S. Public Health Service.

It is the oldest of the organizations comprising the Department of Health, Education, and Welfare. It is also the principal health agency of the Federal Government.

The work of the Service falls into three major categories:

(*a*) Research (notably through the National Institutes of Health, but also through the Communicable Disease Center and other units);

(*b*) Medical and hospital services; and

(*c*) Public health practice.

In view of its competence in all of these domestic fields, it is understandable that PHS has been increasingly called upon to meet the rising personnel and other needs of U.S. Government bilateral health programs overseas, as well as those arising from our participation in multilateral organizations.

PREPONDERANT ROLE IN TECHNICAL ASSISTANCE

Earlier sections have related the PHS role in international research. What must be borne in mind, however, is that the preponderance of U.S. health effort overseas has been in international technical assistance, rather than in research.

Elaboration of the personnel phases of this assistance work will appear in part II of our two part Final Report.

It may however, be noted that the annual report of the Secretary of Health, Education, and Welfare issued December 1, 1959, reported:

> Public Health Service personnel * * * served international health organizations in an advisory capacity in their technical specialties. During this reporting period, 75 Service staff members served on WHO expert panels in 36 health fields and the Service granted frequent requests for short-term assignments of its officers as technical advisers to the World Health Organization and the Pan American Health Organization. In addition, 140 Public Health Service commissioned officers were assigned to ICA for service abroad, providing technical assistance to health administrations of foreign countries.

DIVISION OF INTERNATIONAL HEALTH

There also should be mentioned at this point that a central role in U.S. oversea health assistance efforts is played by the Division of International Health of the Public Health Service. It is here that the official policies of our Government in international health are prepared in collaboration with the Department of State. These policies principally involve our relationships with the World Health Organization.

In terms of fulfilling America's overall role in oversea health, the significance of this division can hardly be overestimated.

Prior to November 1, 1959, an important phase of the work of the Division of International Health was the handling of international

training work in technical assistance. The HEW Annual Report, previously referred to, noted (p. 35):

The Division arranged and supervised training programs in the United States for 644 foreign health workers from 75 countries during the period under review. These trainees—doctors, nurses, sanitary engineers, public health administrators, among others—were trained in U.S. schools of public health, nursing or engineering, or placed in inservice training at hospitals and laboratories, depending upon the objectives of their training programs.

Through this Division the Service played an active role in the exchange of public health missions between the Soviet Union and the United States. Reciprocal missions in biochemistry, endocrinology, the physiology and pharmacology of the central nervous system, and antibotics were exchanged during the year ending June 30, 1959. During this period, the Division's international epidemiology program completed health studies of Libya, Brazil, Israel, Greece and Ireland, making a total of 17 epidemiological surveys completed under this program, which began in 1956.

As of the above-mentioned date, the foreign trainee work was assigned to the Division of General Health Services.

Possible relocation of this training work has been under review in connection with current administrative plans for further reorganization of the Public Health Service.

PROPOSED OFFICE OF INTERNATIONAL HEALTH

The November 1, 1959, transfer made the Division of International Health part of the headquarters establishment of the Office of the Surgeon General.

Further impetus toward strengthening of the division at the level of highest policy in the Service came from a report issued in June 1960 by a "Study Group on Mission and Organization of the Public Health Service," whose chairman was James M. Hundley, M.D. This study group was (in the words of Surgeon General Leroy Burney) "composed of 12 of our most creative career staff." The group's final report contained the following recommendation as regards what was then proposed as a new "Office of International Health."

Office of International Health.—The United States has attained a position of international leadership and respect in public health. It is becoming increasingly involved in international activities of expanding scope.

The next decade can be expected to bring still further increases in these activities. The Public Health Service has much to learn from as well as to contribute to such endeavors. Increasingly other nations are looking toward it for leadership and guidance in developing their own programs. The Service has an obligation to contribute to the progressive development of world health through the exercise of initiative in mobilizing U.S. health resources and skills, and bringing them to bear upon world health problems directly and through appropriate national and international agencies. American scientists and scientific institutions should be encouraged and supported in cooperating with scientific institutions investigating problems of mutual importance and interest.

The Public Health Service has manifold interests, responsibilities, and programs of growing size and complexity in the international area. A strong point of leadership and coordination at the level of the Surgeon General is required.

The Office of International Health will have the specific responsibility for developing servicewide goals, objectives, policies and procedures for international activities. It would maintain liaison and working relations with international organizations such as the World Health Organization, and with international activities of other Federal agencies in which the Service is interested or involved. It would include the functions at present assigned to the Division of International Health, such as representation of the United States at international meetings, preparation of position papers, liaison with the Department of State, intelligence on activities in other countries, and recommendations to the Surgeon General on program proposals for foreign operations.

Plans for the new office, as such, are still being developed.

Meanwhile, I am pleased to note that many welcome reports have been received by the subcommittee on the high competence of the Director of the Division of International Health, Dr. H. van Zile Hyde and of his associates.

There is every indication that the Division (or, if it is established, the Office) of International Health will face increasing opportunities and challenges as America further strengthens its contributions in international health, e.g., through the new Peace Corps.

It is through this Division and through the Interdepartmental Committee on International Health that the subcommittee's specific objective, among others, of sound coordination of interagency activities can best be advanced.

8. THE U.S. GOVERNMENT AND THE INTERNATIONAL MALARIA ERADICATION PROGRAM

Senator HUMPHREY. As indicated in earlier sections of the report (p. 459), the International Cooperative Administration, acting in accordance with a mandate of successive mutual security laws, has devoted a large part of its international health resources toward assisting in the worldwide malaria eradication program.

The battle against malaria occupies so crucial a role in the efforts of ICA, the World Health Organization, the Pan American Health Organization, the United Nations Children's Fund and other national and international organizations that special attention is deserved within this volume. As a matter of fact, the program has rightly been termed "the greatest public health program of all time."

PANEL APPRAISED PROGRAM

In December 1959, ICA named a panel of 12 American experts to consider the future position of the United States with respect to malaria eradication. The report with recommendations by the panel was issued as of August 1, 1960.

The panel, whose members are, I should like to say, world-renowned for their competence, had met on four occasions in order to evaluate the existing situation and to formulate recommendations. The 12 experts were headed by Fred L. Soper, M.D., director, and included the following additional distinguished individuals:

Dr. Justin A. Andrews
Dr. Karl F. Bode
Dr. G. Robert Coatney
Walter C. Earle, M.D.
Mr. S. M. Keeny
Dr. E. F. Knipling
Dr. John A. Logan
Dr. Robert L. Metcalf
Mr. Kenneth D. Quarterman
Paul F. Russell, M.D.
Louis L. Williams, M.D.

Dr. Williams, is, it should be noted, the esteemed retired Public Health Service officer who assisted our own subcommittee by making an independent evaluation of problems of oversea staffing by the ICA and the Public Health Service.

EXCERPTS FROM PANEL'S FINDINGS

The report by the malaria panel represented the collective views of the experts and does not necessarily represent the decisions or state of policy of ICA.

I believe that it would be helpful for the Congress to have at hand the following frank, pertinent findings by the panel:

EXCERPTS FROM REPORT BY EXPERT PANEL ON MALARIA ERADICATION, AUGUST 1, 1960

FINDINGS

Malaria eradication is feasible

Evidence has accumulated since the malaria eradication program was launched, firmly supporting the feasibility of worldwide malaria eradication. It is obvious that global eradication must come about as the cumulative result of successful nationwide eradication programs in all malarious countries, successful malaria control programs, limited to the more heavily populated, economically important areas of a country, fail to promote the mutual long-range interests of all malarious countries.

The principal method of achieving eradication continues to be the application of residual insecticide to habitations to destroy the vector—a house-frequenting mosquito—and thus prevent transmission of the malaria parasites. In situations where the habits of the vector or the living conditions of the people at risk make residual insecticiding ineffective, alternate methods may be required. These include larviciding, elimination of breeding places, and the use of antimalaria drugs. To achieve eradication it is essential that there be (1) a complete geographic delineation of all malarious areas; (2) a total attack on malaria transmission in such areas; and (3) thorough surveillance to appraise results and to prevent reinfection.

A number of technical problems have appeared which complicate malaria eradication. These include insecticide resistance of the mosquito vector, drug resistance of the malaria parasite, variability and modification in the type and construction of dwelling to be sprayed, nomadism and mass population movement, and unusual habits of the mosquito vector. Experience shows that early and continuing epidemiological evaluation and entomological research are required to recognize and solve these problems where they exist.

Resistance of mosquito vectors to insecticides used in residual spraying continues to complicate eradication programs. The number of vector species resistant to DDT or dieldrin has steadily increased and as of early 1960 comprised 21 species (1 to DDT alone, 13 to dieldrin alone and 7 to both DDT and dieldrin), present in areas of at least 29 countries. The resistance problem is intensified by the widespread use of insecticides for agricultural purposes and is certain to become more acute the longer these insecticides are used. Other insecticides such as malathion, to which resistance has not yet appeared, can be used in eradication but their employment will be more costly. Every effort should be made to initiate effective eradication programs in all areas as soon as practicable to make the most rapid progress while there is still minimal resistance to DDT. Careful study of mosquito populations is necessary to detect the onset of resistance and intensified research must be aimed at the development of cheap, safe, substitute insecticides effective against resistant mosquitoes. In evaluating the overall significance of the resistance problem, the panel members are confident that this is not now an insurmountable obstacle to malaria eradication and that adequate research will provide the means for achieving the final objective.

Resistance of the parasites to antimalaria drugs has appeared in widely scattered areas of the world. In general, the phenomenon is sporadic and limited to proguanil and pyrimethamine. Fortunately, parasites resistant to these drugs currently respond well to other agents such as chloroquine and amodiaquine. The panel believes the use of drugs will continue to be an important adjunct to programs of malaria eradication.

Continued research is needed to produce a drug with prolonged preventive action, preferably up to 6 months, and to solve the problem of drug resistance.

Eradication of malaria in any large area may be nullified by the reintroduction of the parasite. To minimize this danger there should be total coverage over entire areas of epidemiological equivalence, as though political boundaries did not exist, and within which infected individuals move freely. Especially acute problems of this sort occur where nomadism exists.

As has been demonstrated in many geographic areas, malaria eradication can be achieved in 8 years or less. Programs are normally 1 year of administrative preparation, including surveys, 4 years of spraying, and 3 years of surveillance. Experience has shown that social and economic benefits will be evident after the first or second year of spraying. It should be recognized, however, that in certain countries, due to administrative, financial or technical difficulties, country-wide eradication may require a longer period. Popular and governmental support, quite substantial during the early phase of eradication when dramatic reduction in malaria was occurring, has been difficult to maintain for the essential final work in peripheral populations and isolated foci.

At present there is ambiguity as to the standard dosage for residual insecticide and the minimal frequency of application.

* * * * * * *

It is important that epidemiological and entomological studies be instituted in each country along with spraying operations to obtain information essential for the effective and efficient use of insecticide.

Progress

The results of the worldwide malaria eradication campaign to date are encouraging. As must be expected in a world of infinitely varied forms and degrees of social, economic and cultural development, and of political stability, progress of malaria eradication has not been equal throughout. There have been exaggerated expectations in some quarters stemming from lack of understanding of the technology involved, and even more so of the political, administrative and financial arrangements required for successful application of that technology. In general, progress toward the elimination of malaria, globally, since the worldwide program was launched, despite the human, physical and technical obstacles, is truly gratifying, and fully justifies the expectation that the worldwide goal, unique in public health history, will be achieved.

It seems evident that in certain countries eradication will be accomplished, or virtually accomplished, within a period of 5 or 6 years from the date of the initiation, or conversion of control programs to eradication.

In the light of eradication experience in many countries, an arbitrary "standard" 8-year program has been adopted, longer than the minimal time required in some nations, perhaps not long enough in some others offering unusual obstacles. Eradication programs are only now being started in some malarious countries, or have yet to be initiated in others, particularly in some of the evolving nations of Africa. But it must be emphasized that malariologists have been surprised at the accelerated development of programs, once the concept of eradication has seized the imagination of the peoples concerned.

The response to the call by WHO in 1955 for global eradication has been even more enthusiastic in malarious countries than had been anticipated. The number of countries and territories in various stages of the campaign rose from 60 in 1956 to 95 in 1959.

The time has been too short for any of the campaigns to be completed, but the numbers of persons under protection by spraying has risen to the astonishing total of over 500 million. The U.S. Government may take pride in having sparked this campaign, which is already helping people equal in number to about three times the population of the United States. This is incomparably the greatest single public health program of all time.

The dramatic reductions in death and illness from malaria (frequently more than 50 percent after the first year of complete coverage by spraying) have made the campaigns generally popular and have laid the foundation for basic economic improvement.

Through the malaria eradication program, government has, in many areas, for the first time established public health contact with tens of millions of persons, mostly in rural villages. In response to the awakened popular demand created by this contact, government is, in some of these areas, beginning to take other practical steps to improve health. Public health work tends to snowball under popular pressure; this popular pressure itself is a force to impel government to complete malaria eradication.

Experience shows that vigorous public health education to convince the individual that he and his family do not have to have malaria and to enlist his active participation greatly facilitates malaria eradiction.

Obstacles to progress

Failure to approve adequate financing.—Before a project is initiated, adequate financing for the whole program should be agreed upon in principle and funds allocated each year well in advance to prevent the possibility of a shortage of funds delaying or interrupting operations. Failure to do this has been almost ruinous to some eradication projects.

Weakness of administrative structure.—Many health ministries are slow in making the major adjustments needed for a successful malaria eradication campaign. Creation of a semiautonomous body is strongly recommended; this requires negotiation and new legislation.

Shortage of trained manpower.—This problem is well nigh universal. It calls for special training courses organized a year or more in advance and for competent personnel to be made available promptly for the course. Especially important is the training of administrators—not only for supply, transport and finance—but also for the wider functions of public health administration. For most malarious countries, these men must be trained abroad. Pending their preparation, the country must depend on international cooperation for the supply of such key personnel.

Shortage of specialists.—This applies to all categories generally, but, in the United States especially to medical public health administrators and epidemiologists trained in malaria eradication. Suitable courses for the training of these specialists are not now offered by any university or school of public health in the United States.

Lack of basic epidemiological data.—In many countries, considerable time, often a full year, must be devoted to the collection of basic information, including the preparation of a "malaria map" delineating the malarious areas and a census of human habitations with estimates of the extent and kind of wall surfaces to be found.

Inadequacy of reporting.—In many projects, spraying operations and evaluation have been instituted without proper provision for detailed reports of what is occurring at a given place at a specified time. Reporting must be improved to permit of continuing analysis of progress on which corrective action can be based.

Shortage of international (PAHO/WHO) teams of epidemiologists.—These teams are invaluable for checking national projects and facilitating an interchange of current experience. Unfortunately, they have not always been available when needed.

Duration

The panel is unable to suggest a terminal date for global eradication because:

(*a*) A malaria control program does not become one of eradication merely by changing its name, but only by reorganization to the rigid specifications of eradication. The standard 8-year period may not be adequate unless the whole area is brought under spraying promptly with no major errors and no important interruption in operation, and without encountering any major technical obstacle.

(*b*) Although the number of countries and territories that have announced a policy of malaria eradication has risen since 1956 from 60 to 95, some of these are not yet fully operational.

(*c*) Many other countries still have pilot studies underway, upon which final plans must be based. The duration of such studies cannot be predicted with any degree of accuracy.

(*d*) Estimates of population in malarious countries where eradication has not yet begun are probably inaccurate. Experience has shown that the population to be covered in certain countries conducting eradication projects has been greatly increased by the inclusion of large numbers of people in areas only lightly malarious. In India, alone, for example, these numbers run into more than 150 million.

(*e*) Problems of resistance are increasing. Although these are not insurmountable, they may lengthen the duration of the campaigns in the countries involved.

(*f*) Local financing may fail. Unless external funds are promptly available, operational breakdowns will inevitably lengthen certain programs.

Cost

(*a*) WHO estimated that worldwide eradication of malaria would cost $1.7 billion from calendar year 1959 to its completion. This figure includes estimates for the Communist countries (including China), and Africa and the cost of 3 years of surveillance for all programs, at an annual rate ranging from 40 to 75 percent of the annual cost of spraying.

(*b*) On the basis of information presently available from WHO, PAHO, ICA, UNICEF, and other sources, the panel estimates that for the period beginning with calendar year 1960, the cost of eradicating malaria in the free world will not be less than $1.3 billion, of which $390 million would be foreign exchange cost and the equivalent of $950 million would be local currency cost.

(*c*) The above estimates of minimum cost are in terms of dollars of present purchasing power and of basic procedures currently followed in the conduct of the eradication programs. They do not allow for technical and administrative contingencies or improvements which experience suggests will occur. Not less than 50 percent in the case of total cost, and not less than 25 percent in the case of foreign exchange cost, should be permitted as an adequate safety factor in such long term estimates. Annual revision of estimates on the basis of additional experience is essential.

RECOMMENDATIONS

The Expert Panel on Malaria has expressed points of view and opinions and made suggestions and recommendations throughout the body of this report. The principal recommendations of the panel on U.S. policy are that:

(*a*) U.S. support of worldwide malaria eradication, a program accepted and approved by the nations of the world at the World Health Assembly in 1955, continue until the objective is achieved;

(*b*) the United States continue the support necessary for the timely completion of the 24 country programs in which ICA is presently participating; pushing through to the end in India, Indonesia and Brazil is especially important;

(*c*) the United States consider support for additional country eradication projects in response to the clear initiative of national governments, especially in countries with large populations such as Pakistan, and giving preference to countries adjacent to those where eradication projects are in progress;

(*d*) the total level of malaria eradication financing from all sources not be permitted to decline until a large number of countries pass from the attack phase into surveillance and beyond;

(*e*) the United States make efforts to obtain substantially larger contributions to the malaria eradication special accounts of PAHO and WHO from the member governments of economically advanced countries; meanwhile, the United States maintain its contributions to the special accounts at adequate levels; encouragement be given to countries which have eradicated malaria, to assist in the remainder of the global campaign;

(*f*) during the surveillance phase of ICA-supported programs, residual financial contributions by the United States be made available if required to insure their completion;

(*g*) the United States give separate consideration to tropical Africa; ICA cooperate intimately with WHO in planning eradication for Africa as a single program; the United States take the initiative, without prejudicing malaria eradication elsewhere, possibly by creating an African malaria fund, and seek the participation of other nations;

(*h*) ICA provide funds for expanded research in epidemiology, surveillance, entomology, insect resistance, dosage and cycle of application of insecticide, chemotherapy, persistent fumigants, and such other problems as may emerge in the course of eradication;

(*i*) ICA encourage the recruitment of medical public health administrators and epidemiologists and provide for their training in malaria eradication, by subsidizing suitable courses in schools of public health in the United States;

(*j*) ICA insist on early and continuing epidemiological evaluation of eradication projects in which it participates and be prepared to withdraw its support from projects where failure to register reasonable progress can be attributed to the lack of government support or inadequacy of administrative controls;

(*k*) centralized control of ICA malaria eradication funds be continued to insure adequate priorities and coordination; allocation for malaria eradication under normal country program procedures not be made; and that

(*l*) ICA negotiate new bilateral agreements with countries which have not yet begun malaria eradication on the basis of the "Administrative Principles in Malaria Eradication Programs." Further, in countries where malaria eradication programs are already in operation, ICA undertake to get acceptance of these administrative principles.[1]

9. THE PEACE CORPS

Senator HUMPHREY. In recent months many welcome communications have arrived concerning the opportunities for service of international health objectives by the new Peace Corps.

As one of those who has been privileged to develop this concept from its inception, I have always felt that its health mission would be a foundation of the corps' usefulness to mankind. Because of the universal interest in healing, action toward improvement of health is one of the most direct, tangible, satisfying, and fruitful endeavors. Peace Corps contributions to relief of pain, suffering, and premature death would help translate the idealism and compassion of the American people into living reality in the less developed areas.

I had asked the subcommittee staff to summarize reactions to the Peace Corps, as received to date. A staff memorandum follows:

1. There is a tremendous reservoir of enthusiasm for the health phase of the Peace Corps' work. Americans, blessed with high health standards, are anxious to help others stride toward such standards.

2. Health problems in the developing areas of the world offer striking confirmation of the fact that it is at the intermediate level of manpower skills that some of the greatest needs exist; it is at this level that the corps, by its very nature, can make its contribution. There is in most of the developing areas a nucleus of experts trained at the top policy level. There is a vast abundance of unskilled manpower at the other end of the scale of training, but it is on the in-between levels that health programs may break down for lack of trained personnel.

3. The worldwide malaria eradication program appears to be one of the most important single fields in which the corps could make a contribution. Corps members could serve as technician-helpers, training teams to carry out "in the field" the goals established by national, regional, or provincial headquarters.

4. Similarly, training and teaching in environmental sanitation offers another great opportunity.

5. In the Western Hemisphere, there is particular opportunity to work out a fruitful relationship with the Pan American Health Organization.

6. Appropriate relationships and lines of demarcation must be worked out between the respective roles and activities of the corps and (*a*) other multilateral organizations, (*b*) bilateral programs, and (*c*) the continued indispensable contributions of nongovernmental organizations abroad.

It is anticipated that the task ahead will involve many problems, but the road is rich with opportunity for humanitarian service.

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[1] The administrative principles are of a technical nature and are not reprinted within this volume.

Section B

INTERGOVERNMENTAL ORGANIZATIONS

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1. STATUTORY AUTHORITY FOR UNITED STATES PARTICIPATION IN INTERGOVERNMENTAL ORGANIZATIONS ENGAGED IN INTERNATIONAL HEALTH ACTIVITIES.

Senator HUMPHREY. This section contains information on the activities of official multilateral organizations of which the United States is a member.

It will be recalled that the second of our committee prints was entitled "Statutory Authority for Medical and Other Health Related Research in the United States Government."

We of the Committee on Government Operations believe that it is essential to have available the laws which the Congress has enacted in this particular field. Only thereafter can it be determined how well these laws are being administered. For that reason, the following pages are devoted to an enumeration of all the statutes by which the United States is a member of intergovernmental organizations with health functions.

The following compendium was prepared for us at our request by the Department of State. It utilized preliminary information which had been compiled at our request by the Legislative Reference Service of the Library of Congress.

TEXTS OF LAWS AND OTHER DATA

For each intergovernmental organization, there is set forth:

(*a*) its purpose;

(*b*) the text of the statutory authority for U.S. participation and contributions;

(*c*) the yearly totals of actual U.S. contributions; and

(*d*) the official source of such contributions.

It will be noted that this information is supplemented by data in section B–2.

STATUTORY AUTHORITY FOR UNITED STATES PARTICIPATION IN INTERNATIONAL HEALTH ACTIVITIES

I. ORGANIZATIONS AND PROGRAMS ENGAGED ONLY IN HEALTH ACTIVITIES

A. WORLD HEALTH ORGANIZATION (WHO)

1. Regular Program

a. Purpose:

Article 2, Chapter II of the Constitution of WHO which entered in force on April 7, 1948, lists the following 22 functions of the organization by which it hopes to achieve its objective of "* * * the attainment by all peoples of the highest possible level of health":

(*a*) to act as the directing and coordinating authority on international health work;

(*b*) to establish and maintain effective collaboration with the United Nations, specialized agencies, governmental health administrations, professional groups and such other organizations as may be deemed appropriate;

(*c*) to assist Governments, upon request, in strengthening health services;
(*d*) to furnish appropriate technical assistance and, in emergencies, necessary aid upon the request or acceptance of Governments;
(*e*) to provide or assist in providing, upon the request of the United Nations, health services and facilities to special groups, such as the peoples of trust territories;
(*f*) to establish and maintain such administrative and technical services as may be required, including epidemiological and statistical services;
(*g*) to stimulate and advance work to eradicate epidemic, endemic and other diseases;
(*h*) to promote, in cooperation with other specialized agencies where necessary, the prevention of accidental injuries;
(*i*) to promote, in cooperation with other specialized agencies where necessary, the improvement of nutrition, housing, sanitation, recreation, economic or working conditions and other aspects of environmental hygiene;
(*j*) to promote cooperation among scientific and professional groups which contribute to the advancement of health;
(*k*) to propose conventions, agreements and regulations, and make recommendations with respect to international health matters and to perform such duties as may be assigned thereby to the Organization and are consistent with its objective;
(*l*) to promote maternal and child health and welfare and to foster the ability to live harmoniously in a changing total environment;
(*m*) to foster activities in the field of mental health, especially those affecting the harmony of human relations;
(*n*) to promote and conduct research in the field of health;
(*o*) to promote improved standards of teaching and training in the health, medical and related professions;
(*p*) to study and report on, in cooperation with other specialized agencies where necessary, administrative and social techniques affecting public health and medical care from preventive and curative points of view, including hospital services and social security;
(*q*) to provide information, counsel and assistance in the field of health;
(*r*) to assist in developing an informed public opinion among all peoples on matters of health;
(*s*) to establish and revise as necessary international nomenclatures of diseases, of causes of death and of public health practices;
(*t*) to standardize diagnostic procedures as necessary;
(*u*) to develop, establish and promote international standards with respect to food, biological, pharmaceutical and similar products;
(*v*) generally to take all necessary action to attain the objective of the Organization.

(Treaties and other International Acts Series 1808)

b. Authority for U.S. Participation:

"* * * The President is hereby authorized to accept membership for the United States in the World Health Organization * * * the constitution of which was adopted in New York on July 22, 1946, by the International Health Conference for the Establishment of an International Health Organization, and deposited in the archives of the United Nations * * *" [62 Stat. 441, c. 469, 1, June 14, 1948].

c. Statutory Limitation on U.S. Contribution:

"There is hereby authorized to be appropriated annually to the Department of State—(a) such sums as may be necessary for the payment by the United States of its share of the expenses of the Organization as apportioned by the Health Assembly in accordance with article 56 of the constitution of the Organization, except that payments by the United States for any fiscal year of the Organization after 1958 shall not exceed 33⅓ per centum of the total assessments of active members of the Organization for such fiscal year; * * *" [62 Stat. 441, as amended. 22 U.S.C.A. 290b (1957)].

d. United States Contribution:

Fiscal year	Amount	Fiscal year—Continued	Amount
1949	$1,860,884	1955	$2,987,667
1950	1,918,220	1956	3,349,787
1951	3,070,931	1957	3,410,040
1952	2,481,159	1958	3,867,610
1953	2,866,667	1959	4,666,480
1954	2,993,400	1960 (estimate)	4,744,090

e. Source of Funds:

Contributions to International Organizations Appropriation, Department of State.

2. Malaria Eradication Program

a. Purpose:

To eradicate malaria in many areas of the world.

b. Authority for U.S. Participation:

"SEC. 420. *Malaria Eradication.* The Congress of the United States, recognizing that the disease of malaria, because of its widespread prevalence, debilitating effects, and heavy toll in human life, constitutes a major deterrent to the efforts of many peoples to develop their economic resources and productive capacities and to improve their living conditions, and further recognizing that it now appears technically feasible to eradicate this disease, declares it to be the policy of the United States and the purpose of this section to assist other peoples in their efforts to eradicate malaria. The President is hereby authorized to furnish to such nations, *organizations*, persons or other entities as he may determine, and on such terms and conditions as he may specify, financial and other assistance to carry out the purpose of this section. Not to exceed $23,300,000 of the funds made available pursuant to authorizations contained in this Act (other than title I, chapter 1, and title II) may be used during the fiscal year 1958 to carry out the purpose of this section." [71 Stat. 362; 22 U.S.C. 1940] [Emphasis added.]

c. United States Contributions:

Fiscal year:	Amount
1958	$5,000,000
1959	3,000,000
1960	3,000,000

d. Source of Funds:

Mutual Security Appropriation Acts.

3. Community Water Supply Program

a. Purpose:

To launch a worldwide attack on the gastrointestinal diseases through the stimulation of national programs to provide safe water supplies for human needs.

b. Authority for U.S. Contribution:

Contributions to this special program will be made from the Special Assistance Fund as authorized by Public Law 86-108, Section 400(a), July 24, 1959. The above public law contains the following statement of policy:

"International Cooperation in Health

"SECTION 501. (a) The Congress of the United States recognizes that large areas of the world are being ravaged by diseases and other health deficiencies which are causing widespread suffering, debility, and death and are seriously deterring the efforts of peoples in such areas to develop their resources and productive capacities and to improve their living conditions. The Congress also recognizes that international efforts are needed to assist such peoples in bringing disease and other health deficiencies under control, in preventing their spread or reappearance, and in eliminating their basic causes. Accordingly, the Congress affirms that it is the policy of the United States to accelerate its efforts to encourage and support international cooperation in programs directed toward the conquest of diseases and other health deficiencies.

"(b) In order to carry out the purposes of subsection (a) of this section and in order to plan logically for an orderly expansion of United States support to international health activities, the President is authorized to undertake, in cooperation directly with other governments, or *indirectly through utilizing the resources and services of the United Nations and the Organization of American States or any of their specialized agencies, programs and projects* of research, studies, field surveys, trials, and demonstrations to determine the feasibility of future intensive programs for reduction, control, or eradication of disease problems of international importance. Of the funds appropriated pursuant to Section 451(b) of the Mutual Security Act of 1954, as amended, the sum of $2,000,000 shall be available to carry out the purposes of this section." [73 Stat. 255] [Emphasis added.]

c. United States Contribution:

	Amount
Fiscal year: 1960	$300,000

d. Source of Funds:

Mutual Security Appropriation Act, 1960.

4. Medical Research Program

a. Purpose:

To achieve "greater accomplishments in the control of disease, in the building of health services and in the opening of new avenues of medical knowledge through research." (President's Message to Tenth World Health Assembly, Minneapolis, May 1958.)

b. Authority for U.S. Contribution:

Contribution to this special program will be made from the Special Assistance funds as authorized by Public Law 86–108, section 400(a), July 24, 1959. See citation under section A.3.b above.

In addition, Public Law 85–477, section 502(m), June 30, 1958, further amended 62 Stat. 441, as amended, as follows:

"(m) The Act of June 14, 1948, as amended (22 U.S.C. 290) authorizing participation in the World Health Organization, is amended by adding the following new section 6:

" 'SEC. 6. The Congress of the United States, recognizing that the diseases of mankind, because of their widespread prevalance, debilitating effects, and heavy toll in human life, constitute a major deterrent to the efforts of many peoples to develop their economic resources and productive capacities, and to improve their living conditions, declares it to be the policy of the United States to continue and strengthen mutual efforts among the nations for research against diseases such as heart disease and cancer. *In furtherance of this policy, the Congress invites the World Health Organization to initiate studies looking toward the strengthening of research and related programs against these and other diseases common to mankind or unique to individual regions of the globe'.*" [72 Stat. 275] [22 U.S.C. 290e] [Emphasis added.]

In fiscal year 1959, the Department of Health, Education, and Welfare under authority of Section 301(d), Public Health Service Act [58 Stat. 692; 42 U.S.C. 241], made a contribution to the World Health Organization for research.

c. United States Contribution:

Fiscal year:	*Amount*
1959	$300,000
1960	500,000

d. Source of Funds:

Fiscal Year 1959: Public Health Service Act.

Fiscal Year 1960: Mutual Security Appropriation Act, 1960.

5. United Nations Expanded Program of Technical Assistance

This program will be explained more fully in another section of this report. However, the amount obligated by the World Health Organization from the UNTA special fund and the approximate U.S. share is listed below.

Calendar year	Total amount obligated	United States, percent	Amount
1950–51	$1,332,865	59.93	$798,786
1952	4,353,970	60.65	2,640,683
1953	4,178,806	57.20	2,390,277
1954	3,754,545	55.40	2,080,393
1955	4,335,981	54.22	2,350,969
1956	5,184,538	50.00	2,592,269
1957	5,204,666	49.54	2,578,392
1958	5,602,112	45.00	2,520,950
1959 (estimated)	5,456,344	40.00	2,182,538

B. PAN AMERICAN HEALTH ORGANIZATION (PAHO)

1. Regular Program

a. *Purpose:*

The functions and objectives of the Pan American Health Organization include (1) a continuing attack on disease at its sources, to reduce or eliminate danger of transmission of disease and disease vectors in the Americas; (2) reduction or elimination of the necessity of costly quarantines; (3) stimulation and support of national health authorities in the Americas in their efforts to control disease, including assistance in connection with planning and operation of special health projects; (4) participation in and promotion of prompt reporting of existence of quarantinable disease. The Organization participates in the work of the World Health Organization by serving as regional office of that organization in the Western Hemisphere.

b. *Initial Authority for United States Participation:*

The Pan American Sanitary Convention was signed at Washington on October 14, 1905, advice and consent of the Senate given on February 22, 1906, ratified by the President on May 29, 1906. [35 Stat. 2094; TS 518] The President's proclamation, dated March 1, 1909, reads in part:

"* * * Convention between the United States of America, Chile, Costa Rica, Cuba, the Dominican Republic, Ecuador, Guatemala, Mexico, Nicaragua, Peru and Venezuela, providing measures to guard the public health against the invasion and propagation of yellow fever, plague and cholera, was concluded and signed by their respective Plenipotentiaries at the City of Washington on the 14th day of October 1905 * * *"

c. *Current Authority for United States Participation:*

The Pan American Sanitary Code of 1924 revised the above Convention. It was signed on November 14, 1924; advice and consent of the Senate given on February 23, 1925, and ratified by the President on March 25, 1925. [44 Stat. 2031; TS 714]

Article 60 of the 1924 Code states:

"For the purpose of discharging the functions and duties imposed upon the Pan American Sanitary Bureau, a fund of not less than $50,000 shall be collected by the Pan American Union apportioned among the signatory Governments on the same basis as are the expenses of the Pan American Union."

d. *United States Contributions:*

The United States has contributed to the PAHO since 1905. Contributions from fiscal year 1946 to fiscal year 1960 are as follows:

Fiscal year:	Amount	Fiscal year—Continued	Amount
1946	$62,494	1954	$1,320,000
1947	63,585	1955	1,320,000
1948	111,841	1956	1,320,000
1949	145,397	1957	1,386,000
1950	1,153,498	1958	1,518,000
1951	1,247,147	1959	1,914,000
1952	1,355,328	1960	2,310,000
1953	1,318,982		

e. *Source of Funds:*

Contributions to International Organizations Appropriation, Department of State.

2. Malaria Eradication Program

a. *Purpose:*

To eradicate malaria in the American Hemisphere.

b. *Authority for U.S. Participation:*

See section A.2.b above.

c. *United States Contributions:*

Fiscal year:	*Amount*
1957	$1,500,000
1958	2,000,000
1959	3,000,000
1960	2,000,000

d. *Source of Funds:*

Mutual Security Appropriation Acts.

3. Community Water Supply Program

a. *Purpose:*

See section A.3.a., above.

b. *Authority for U.S. Contribution:*

See section A.3.b., above.

c. *United States Contribution:*	*Amount*
Fiscal year: 1960	$200,000

d. *Source of Funds:*

Mutual Security Appropriation Act, 1960.

4. Organization of American States Technical Cooperation Program

This program will be explained more fully in another section of this report.

C. UNITED NATIONS CHILDREN'S FUND (UNICEF)

1. Purpose

The present purpose of the UNICEF program is to provide supplies, equipment, and training to governments for the establishment and expansion of programs designated to improve the health and welfare of mothers and children. Assistance which UNICEF, with the Specialized Agencies and the United Nations Bureau of Social Affairs providing technical guidance, makes available to governments falls in four main categories—maternal and child welfare services, communicable disease control, nutrition and emergency aid.

2. Initial Authority for U.S. Contributions

Public Law 84, 80th Congress, approved May 31, 1947, which reads in part:

"* * * there is hereby authorized to be appropriated to the President not to exceed $350,000,000 for the provision of relief assistance to the people of countries devastated by war, such relief assistance to be limited to the following: Food, medical supplies, processed and unprocessed materials for clothing, fuel, fertilizer, pesticides, and seed: *Provided*, That from the funds authorized under this section the President shall make contributions to the International Children's Emergency Fund of the United Nations for the special care and feeding of children, and such contributions shall not be subject to the limitations and requirements provided in this joint resolution, but after $15,000,000 has been so contributed, no further contributions shall be made which would cause the aggregate amount so contributed by the United States (1) to constitute more than 57 per centum of the aggregate amount contributed to said fund by all governments not receiving assistance from said fund, including the United States; or (2) to exceed $40,000,000, whichever is the lesser." [61 Stat. 125, c. 90]

3. Current Authority for U.S. Contributions:

Section 406 of Public Law 665, 83rd Congress approved August 26, 1954, states:

"SEC. 406. CHILDREN'S WELFARE.—There is hereby authorized to be appropriated not to exceed $13,500,000 for contributions during the fiscal year 1955 to

the United Nations Children's Fund." [68 Stat. 844 (1954), as amended, 22 U.S.C. 1926]

This section has been amended each year to authorize appropriation of funds for this purpose.

4. United States Contributions:

a. *Currency:*

Fiscal year:	Amount	Fiscal year—Continued	Amount
1948	$32,795,833	1955	$12,500,000
1949	25,491,692	1956	14,500,000
1950	15,356,361	1957	10,000,000
1951	7,106,114	1958	11,000,000
1952	----------	1959 (estimated)	11,000,000
1953	6,666,667	1960 (estimated)	12,000,000
1954	9,814,333		

b. *Goods:*

Under authority of Title III, Public Law 480, the Department of Agriculture makes dried skim milk available to UNICEF on a grant basis.

Fiscal year:	Quantity (in million pounds)	Fiscal year—Continued	Quantity (in million pounds)
1955	83.6	1958	77.5
1956	126.4	1959	99.9
1957	107.2		

5. Source of funds for Cash Contributions

Mutual Security Appropriation Acts.

II. ORGANIZATIONS AND PROGRAMS ENGAGED PARTIALLY IN HEALTH ACTIVITIES

A. CARIBBEAN COMMISSION [1]

1. Purpose

To improve the economic and social conditions of the peoples in the non-independent areas of the Caribbean through encouraging and strengthening co-operation and through regular consultation among the governments and peoples concerned on matters of common interest, particularly agriculture, communications, education, fisheries, *health*, housing, industry, labor, social welfare, and trade. [Emphasis added.]

2. Authority for U.S. Participation

"* * * That the President is hereby authorized to accept membership for the United States in the Caribbean Commission, created by 'an agreement for the establishment of the Caribbean Commission,' signed in Washington on October 30, 1946, by representatives of the Governments of the French Republic, the Kingdom of the Netherlands, the United Kingdom of Great Britain and Northern Ireland, and the United States of America, and to appoint the United States Commissioners, and their alternates, thereto.

"SEC. 2. There is hereby authorized to be appropriated to the Department of State, out of any money in the Treasury not otherwise appropriated—

"(a) Not more than $142,000 annually for the payment by the United States of its proportionate share of the expenses of the Commission and its auxiliary and subsidiary bodies, pursuant to Article XV of the 'agreement for the Establishment of the Caribbean Commission'; * * *" [62 Stat. 65 (1948), 22 U.S.C 280h (1952).]

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[1] Reconstituted as Caribbean Organization, see press release, Department of State, June 21, 1960.

3. Statutory Limitation on U.S. Contributions

See section 2 above.

4. United States Contributions

Fiscal year:	Amount	Fiscal year—Continued	Amount
1947	$103,782	1954	$132,000
1948	111,584	1955	131,077
1949	117,844	1956	125,635
1950	122,002	1957	134,973
1951	112,094	1958	137,959
1952	127,058	1959	139,534
1953	132,818	1960	142,000

5. Source of Funds

Contributions to International Organizations Appropriation, Department of State.

B. FOOD AND AGRICULTURE ORGANIZATION (FAO)

1. Purpose

The purposes for which the FAO was established are to raise levels of nutrition and standards of living; to secure improvements in the efficiency of the production and distribution of all food and agricultural products; and to better the condition of rural populations.

The functions of the Organization, outlined in Article I of the constitution, are to collect, analyze, interpret, and disseminate information relating to nutrition, food, and agriculture; to promote and, where appropriate, recommend national and international action with respect to (*a*) scientific, technical, social, and economic research relating to nutrition, food, and agriculture; (*b*) the improvement of education and administration relating to nutrition, food, and agriculture, and the spread of public knowledge of nutritional and agricultural science and practice; (*c*) the conservation of natural resources and the adoption of improved methods of agricultural production; (*d*) the improvement of the processing, marketing, and distribution of food and agricultural products; (*e*) the adoption of policies for the provision of adequate agricultural credit, national and international; and (*f*) the adoption of international policies with respect to agricultural commodity arrangements; to furnish such technical assistance as governments may request; to organize, in cooperation with governments concerned, such missions as may be needed to assist them to fulfill the obligations arising from their acceptance of the recommendations of the United Nations Conference on Food and Agriculture.

2. Authority for U.S. Participation

"* * * That the President is hereby authorized to accept membership for the United States in the Food and Agriculture Organization of the United Nations (hereinafter referred to as the "Organization") the Constitution of which is set forth in appendix I of the First Report of the Governments of the United Nations by the Interim Commission on Food and Agriculture, dated August 1, 1944.

"SEC. 2. There is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, a sum not exceeding $625,000 during the first fiscal year of the Organization and sums not exceeding $1,250,000 annually thereafter as may be required for expenditure under the direction of the Secretary of State, for the payment by the United States of its proportionate share in the expenses of the Organization." [59 Stat. 529 (1945).]

3. Statutory Limitation on U.S. Contribution

"SEC. 421. Food and Agriculture Organization.—Public Law 174, Seventy-ninth Congress, as amended by Section 1(b) of Public Law 806, Eighty-first Congress, is hereby further amended by striking out the figure '$2,000,000' in section 2 thereof and inserting in lieu thereof the figure '$3,000,000', and by inserting before the period at the end of such section a colon and the following: '*Provided*, That the percentage contribution of the United States to the total annual budget of the Organization shall not exceed 31.5 per centum.'" [70 Stat. 559; 22 U.S.C. 279a.]

"SEC. 11. Title V, chapter 3, of the Mutual Security Act of 1954, as amended, which relates to repeal and miscellaneous provisions, is further amended as follows:

"(b) Amend section 544, which relates to amendments to other laws, as follows:

"(2) Add the following new subsection:

"(b) Public Law 174, Seventy-ninth Congress, as amended, is hereby further amended by striking out '31.5' in the proviso at the end of section 2 and inserting '33.33'." [70 Stat. 559, as amended, 22 U.S.C.A. § 279 (1957).]

4. United States Contributions

Fiscal year:	Amount	Fiscal year—Continued	Amount
1946	$625,000	1954	$1,554,000
1947	1,250,000	1955	1,650,435
1948	1,250,000	1956	1,640,552
1949	1,250,000	1957	1,994,863
1950	1,250,000	1958	2,034,770
1951	1,420,800	1959	3,000,000
1952	1,355,000	1960 (estimate)	2,997,489
1953	1,673,750		

5. Source of Funds

Contributions to International Organizations Appropriation, Department of State.

C. INTER-AMERICAN CHILDREN'S INSTITUTE

1. Purpose

The institute is a center of social action, documentation, study, advice, and information in the Western Hemisphere on all questions relating to childlife and welfare. The institute conducts bibliographical research, collects information by correspondence, and, on the request of member governments, cooperates in studies. The institute's library at Montevideo serves as a permanent inter-American center of documentation on child health and welfare matters. The name of the organization was changed from the American International Institute for the Protection of Childhood in 1957.

2. Initial Authority for U.S. Participation

"* * * To enable the United States to become a member of the American International Institute for the Protection of Childhood at Montevideo, Uruguay, there is hereby authorized to be appropriated the sum of $2,000 per annum for the contribution by the United States toward the support of the institution." [45 Stat. 487]

3. Current Authority for U.S. Participation

"* * * That public Resolution 31, approved May 3, 1928 [45 Stat. 487], as revised by section 1 (*a*) of Public Law 806, approved September 21, 1950 [64 Stat. 902], is hereby amended to read as follows: 'That in order to meet the obligations of the United States as a member of the American International Institute for the Protection of Childhood, there is authorized to be appropriated annually to the Department of State such sums not to exceed $25,000 per annum, as may be necessary for the payment by the United States of its share of the expenses of the Institute, as apportioned in accordance with the statutes of the Institute.'" [22 U.S.C. § 269 b]

4. Statutory Limitation on U.S. Contributions

See 3 above.

5. United States Contributions

The United States has contributed to the Inter-American Children's Institute since 1928. U.S. contributions from fiscal year 1946 to fiscal year 1960 are as follows:

Fiscal year:	Amount	Fiscal year—Continued	Amount
1946	$2,000	1954	$10,000
1947	2,000	1955	10,000
1948	2,000	1956	10,000
1949	2,000	1957	10,000
1950	2,000	1958	22,000
1951	34,000	1959	25,000
1952	10,000	1960	[1] 25,000
1953	10,000		

[1] Raised to $50,000 by statute, Public Law 86-384.

6. Source of Funds

Contributions to International Organizations Appropriation, Department of State.

D. INTERNATIONAL ATOMIC ENERGY AGENCY

1. Purpose

The Agency's basic objective as set forth in its statute is "to seek to accelerate and enlarge the contribution of atomic energy to promote *health* and prosperity throughout the world." To meet this objective the Agency will seek to encourage and assist research on, and the development and practical application of, atomic energy for peaceful uses.

2. Authority for U.S. Participation

a. *Regular Activities:*

"AN ACT

"To provide for the appointment of representatives of the United States in the organs of the International Atomic Energy Agency, and to make other provisions with respect to the participation of the United States in that Agency, and for other purposes.

"*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That this Act may be cited as the 'International Atomic Energy Agency Participation Act of 1957'.

"SEC. 3. The participation of the United States in the International Atomic Energy Agency shall be consistent with and in furtherance of the purposes of the Agency set forth in its Statute and the policy concerning the development, use, and control of atomic energy set forth in the Atomic Energy Act of 1954, as amended * * *" [71 Stat. 453; T.I.A.S. 3873.]

"SEC. 5. There is hereby authorized to be appropriated annually to the Department of State, out of any money in the Treasury not otherwise appropriated, such sums as may be necessary for the payment by the United States of its share of the expenses of the International Atomic Energy Agency as apportioned by the Agency in accordance with paragraph (D) of Article XIV of the Statute of the Agency * * *" [71 Stat. 454.]

b. *Technical Program Activities:*

"SEC. 419. Atoms for Peace.—(a) The President is hereby authorized to furnish from funds made available pursuant to this section, in addition to other funds available for such purposes, and on such terms and conditions as he may specify, assistance designed to promote the peaceful uses of atomic energy abroad. There is hereby authorized to be appropriated to the President for the fiscal year 1958 not to exceed $7,000,000 to carry out the purposes of this section." [71 Stat. 362; 22 U.S.C. 1939.]

This section has been amended each year to authorize appropriation of funds for this purpose.

c. *Laboratory Equipment:*

Public Law 85–590 of August 4, 1958.

3. United States Contributions

a. *Regular Budget:*

Fiscal year:	*Amount*
1959	$2,029,464
1960 (estimate)	1,682,248

b. *Technical Program Budget:*

Fiscal year:	*Amount*
1958	$64,570
1959 (estimate)	750,000
1960 (estimate)	750,000

c. *Laboratory Equipment:*

	Amount
Fiscal year: 1959	$600,000

For calendar years 1959 and 1960, the United States has pledged $750,000 to IAEA's technical program subject to the following limitation: $500,000 to be paid without reference to contributions from member states and $250,000 to match total contributions in excess of $1,000,000.

4. Source of Funds

a. Regular budget—Contributions to International Organizations Appropriations, Department of State.
b. Technical Program budget—Mutual Security Appropriation Acts.
c. Laboratory equipment—Funds allocated to the Atomic Energy Commission.

E. INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS AND ASSOCIATED UNIONS

1. Purpose

The purpose of the International Council of Scientific Unions and its associated unions is to promote *cooperation in scientific research* and to direct, coordinate, and stimulate scientific investigations in the subject fields of the unions. To this end, the unions' international congresses and conferences are held and reports are issued on the progress of cooperatively undertaken research.

2. Authority for U.S. Participation

"AN ACT to authorize appropriations to pay the annual share of the United States as an adhering member of the International Council of Scientific Unions and Associated Unions.

"*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That there is hereby authorized to be appropriated, to be expended under the direction of the Secretary of State, in paying the annual share of the United States as an adhering member of the International Council of Scientific Unions and Associated Unions, including the International Astronomical Union, International Union of Chemistry, International Union of Geodesy and Geophysics, International Union of Mathematics, International Scientific Radio Union, International Union of Physics, and International Geographical Union, and such other international scientific unions as the Secretary of State may designate, such sum as may be necessary for the payment of such annual share, not to exceed $9,000 in any one year." [49 Stat. 540 (1935).]

3. Statutory Limitation on U.S. Contributions

"JOINT RESOLUTION

"To amend the Act of Congress approved August 7, 1935 (Public Law 253), concerning United States contributions to the International Council of Scientific Unions and certain associated unions.

"*Resolved by the Senate and House of Representatives of the United States of America in Congress assembled*, That Public Law 253, Seventy-fourth Congress, is hereby amended by striking out the figure '$9,000' in the section dealing with the International Council of Scientific Unions and inserting in lieu thereof the figure '$65,000'." [49 Stat. 540 (1935), as amended, 22 U.S.C.A. 274 (Supp. 1958).]

4. United States Contributions

Fiscal year:	*Amount*	Fiscal year—Continued	*Amount*
1946	$5,391	1954	$8,175
1947	5,281	1955	7,987
1948	6,575	1956	8,170
1949	6,993	1957	9,000
1950	6,532	1958	9,000
1951	8,918	1959	9,000
1952	8,468	1960 (estimate)	24,486
1953	7,985		

5. Source of Funds

Contributions to International Organizations Appropriation, Department of State.

F. INTERNATIONAL LABOR ORGANIZATION

1. Purpose

The International Labor Organization is an intergovernmental agency established to assist in the raising of labor standards and in the improvement of working conditions. The ILO is unique among international organizations in that it includes representation not only of governments but of employers and workers as well. As a result of this "tripartite" representation, the participation of the groups most directly affected by the work of the ILO is assured.

The work of the Organization covers a wide range of subjects, including hours of work, minimum age for employment, working conditions of women and young workers, workmen's compensation, social insurance, minimum wage machinery, labor standards in non-self-governing territories, industrial safety, statistics, migration for employment, conditions of work of seamen, the right of workers and employers to organize into associations of their own choosing, trade union rights, and forced labor.

2. Initial Authority for U.S. Participation

"* * * The President is hereby authorized to accept membership for the Government of the United States of America in the International Labor Organization which, through its general conference of representatives of its members and through its International Labor Office, collects information concerning labor throughout the world and prepares international conventions for the consideration of member governments with a view to improving conditions of labor." [48 Stat. 1182 (1934).]

3. Current Authority for U.S. Participation

48 Stat. 1182 (1934); 22 U.S.C. § 271–72 (1952); Instrument for the Amendment of the Constitution of the International Labor Organization, August 2, 1948, 62 Stat. 3485, T.I.A.S. 1868.

4. Statutory Limitation on U.S. Contributions

"SEC. 2. There is hereby authorized to be appropriated annually to the Department of State—

"(a) such sums, not to exceed $1,091,739 per annum, as may be necessary for the payment by the United States of its share of the expenses of the Organization, as apportioned by the International Labor Conference in accordance with article 13(c) of the constitution of the Organization; * * *." [62 Stat. 1151 (1948).]

"(e) Public Law 843, Eightieth Congress, is hereby amended:

"(1) By striking out the figure '$1,091,739' in subsection (a) of section 2 thereof and inserting in lieu thereof the figure '$1,750,000';

"(2) By striking out the words 'article 13(c)' in section (a) of section 2 thereof and inserting in lieu thereof the words 'article 13(2)(c) and 13(3)'; * * *." [62 Stat. 1151 (1948), as amended; 22 U.S.C. § 272a(a).]

"(f) The portion of subsection (a) of section 2 of the joint resolution of June 30, 1948, as amended (22 U.S.C. 272a(a)), which precedes 'as apportioned', is amended to read as follows: '(a) such sums as may be necessary for the payment of the United States of its share of the expenses of the Organization, but not to exceed 25 per centum of such expenses'." [62 Stat. 1151 (1948), as amended; 22 U.S.C.A. § 272a (supp. 1958.)]

5. United States Contributions

Fiscal year:	Amount	Fiscal year—Continued	Amount
1946	$532,639	1954	$1,421,299
1947	487,656	1955	1,527,476
1948	521,697	1956	1,633,854
1949	1,091,739	1957	1,638,860
1950	848,058	1958	1,750,000
1951	1,269,868	1959	1,927,685
1952	1,466,412	1960 (estimated)	2,132,464
1953	1,538,991		

6. Source of Funds

Contributions to International Organizations Appropriations, Department of State.

G. ORGANIZATION OF AMERICAN STATES TECHNICAL COOPERATION PROGRAM

1. Purpose

The purpose of the technical cooperation program of the Organization of American States is to assist the Latin American countries in their economic development. The program is directed to technical education and provides training, instruction, and technical advice at regional training centers and educational institutions.

The Organization of American States technical cooperation program is limited to training centers or courses which are regional in nature. All countries of Latin America are eligible to send trainees to attend the centers. None of the program's funds is used to provide direct technical assistance to individual governments.

Certain of the training centers conduct courses in social welfare problems, nutrition and dietary matters, and a workshop on the care of crippled children.

2. Initial Authority for U.S. Participation

"SEC. 404. (a) In order to accomplish the purposes of this title, the United States is authorized to participate in multilateral technical cooperation programs carried on by the United Nations, the Organization of American States, and their related organizations, and by other international organizations, wherever practicable.

"(b) Within the limits of appropriations made available to carry out the purposes of this title, the President is authorized to make contributions to the United Nations for technical cooperation programs carried on by it and its related organizations which will contribute to accomplishing the purposes of this title as effectively as would participation in comparable programs on a bilateral basis. The President is further authorized to make contributions for technical cooperation programs carried on by the Organization of American States, its related organizations, and by other international organizations" [64 Stat. 205; 22 U.S.C. § 1557b].

3. Current Authority for U.S. Participation

"SEC. 306. MULTILATERAL TECHNICAL COOPERATION.—As one means of accomplishing the purposes of this title, the United States is authorized to participate in multilateral technical cooperation programs carried on by the United Nations, the Organization of American States, their related organizations, and other international organizations, wherever practicable * * *" [68 Stat. 842 (1954); 22 U.S.C. 1896].

This section has been amended each year to authorize appropriation of funds for this purpose.

4. United States Contributions

Fiscal year:	*Amount*	Fiscal year—Continued	*Amount*
1951	$882,143	1956	$1,200,000
1952	839,578	1957	1,251,311
1953	840,963	1958	1,211,506
1954	852,335	1959 (estimated)	1,500,000
1955	1,135,768		

5. Source of Funds

Mutual Security Appropriation Acts.

H. SOUTH PACIFIC COMMISSION

1. Purpose

The purpose of the Commission is to promote the economic and social development and further the welfare and advancement of the peoples of the dependent territories administered by the six participating governments in the South Pacific region.

2. Authority for U.S. Participation

"* * * That the President is hereby authorized to accept membership for the United States in the South Pacific Commission, created by the Agreement Establishing the South Pacific Commission, signed on February 6, 1947, at Canberra, Australia, by delegates representing the Governments of Australia, the French Republic, the Kingdom of the Netherlands, New Zealand, the United Kingdom of Great Britain and Northern Ireland, and the United States of America, and to appoint the United States Commissioners, and their alternates, thereto.

"SEC. 3. There is hereby authorized to be appropriated to the Department of State, out of any money in the Treasury not otherwise appropriated—

"(a) Not more than $20,000 annually for the payment by the United States of its proportionate share of the expenses of the Commission and its auxiliary and subsidiary bodies, as set forth in article XIV of the Agreement Establishing the South Pacific Commission;" [62 Stat. 15 (1948)].

3. Statutory Limitation on U.S. Contributions

"(c) Public Law 403, Eighteth Congress, is amended by striking out the figure '$20,000' in subsection (a) of section 3 thereof and inserting in lieu thereof the figure '$75,000'" [64 Stat. 902; 22 U.S.C. 280a-c (1952)].

4. United States Contributions

Fiscal year:	Amount	Fiscal year—Continued	Amount
1948	$20,163	1955	$59,245
1949	18,318	1956	61,171
1950	20,000	1957	69,796
1951	48,808	1958	69,420
1952	33,670	1959	68,672
1953	55,092	1960 (estimated)	69,777
1954	57,954		

5. Source of Funds

Contributions to International Organizations Appropriations, Department of State.

I. UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION (UNESCO)

1. Purpose

The purpose of UNESCO is to contribute to peace and security by promoting collaboration among member states in the fields of education, science and culture. In the accomplishment of this purpose, the Organization works to advance mutual knowledge and understanding by international conferences, expert studies and the dissemination of factual information concerned with education, the natural sciences, the social sciences, cultural activities and mass communications; to promote the free flow of ideas by word and image; to encourage the exchange of persons, publications, and other materials of information; to assure the conservation and protection of books, works of art, and monuments of historical and scientific significance; and to collaborate with member states at their request in the development of educational, scientific and cultural programs.

2. Authority for U.S. Participation

"* * * That the President is hereby authorized to accept membership for the United States in the United Nations Educational, Sicentific and Cultural Organization (hereinafter referred to as the 'Organization'), the constitution of which was approved in London on November 16, 1945, by the United Nations Conference for the establishment of an Educational, Scientific, and Cultural Organization, and deposited in the Archives of the Government of the United Kingdom" [60 Stat. 712 (1946); 22 U.S.C. § 287 m-t (1952)].

"SEC. 6. There is hereby authorized to be appropriated annually to the Department of State, out of any money in the Treasury not otherwise appropriated, such sums as may be necessary for the payment by the United States of its share of the expenses of the Organization as apportioned by the General Conference of the Organization in accordance with article IX of the constitution of the Organization * * *" [60 Stat. 714 (1946); 22 U.S.C. § 287 m-t (1952)].

3. United States Contributions

Fiscal year:	Amount	Fiscal year—Continued	Amount
1948	$3,500,385	1955	$3,153,501
1949	3,601,424	1956	2,747,526
1950	2,887,173	1957	3,152,574
1951	2,814,381	1958	3,382,999
1952	2,785,400	1959	3,401,102
1953	2,855,609	1960	3,789,810
1954	2,845,899		

4. Source of Funds

Contributions to International Organizations Appropriations, Department of State.

J. UNITED NATIONS EXPANDED PROGRAM OF TECHNICAL ASSISTANCE AND SPECIAL FUND

1. Purpose

The purpose of the United Nations expanded program of technical assistance is to promote the economic development of underdeveloped countries through the provision of technical assistance on an international basis. The United Nations and the specialized agencies assist underdeveloped countries in strengthening their economies, especially in the fields of agriculture, *health*, and education; in raising the standard of living of their people; and in promoting the development of effective and responsible governmental administrative machinery.

2. Initial Authority for U.S. Participation

"SEC. 404. (a) In order to accomplish the purposes of this title, the United States is authorized to participate in multilateral technical cooperation programs carried on by the United Nations, the Organization of American States, and their related organizations, and by other international organizations, wherever practicable.

"(b) Within the limits of appropriations made available to carry out the purposes of this title, the President is authorized to make contributions to the United Nations for technical cooperation programs carried on by it and its related organizations which will contribute to accomplishing the purposes of this title as effectively as would participation in comparable programs on a bilateral basis. * * *" [64 Stat. 205; 22 U.S.C. 1557b.]

3. Current Authority for U.S. Participation

"SEC. 306. Multilateral Technical Cooperation.—As one means of accomplishing the purposes of this title, the United States is authorized to participate in multilateral technical cooperation programs carried on by the United Nations, the Organization of American States, their related organizations, and other international organizations, wherever practicable. * * *" [68 Stat. 842 (1954); 22 U.S.C. 1896.]

This section has been amended each year to authorize appropriation of funds for this purpose.

4. Statutory Limitation on U.S. Contribution

"SEC. 204. Title III of the chapter designated by paragraph (2) of section 501 of this Act as chapter II of the Mutual Security Act of 1954, as amended, which relates to technical cooperation, is amended as follows:

"(b) Amend section 306, which relates to multilateral technical cooperation, as follows:

"(2) In subsection (a), which relates to contributions to the United Nations Expanded Program of Technical Assistance, strike out '$15,500,000 for the fiscal year 1958' and substitute '$20,000,000 for the fiscal year 1959'; insert 'and such related fund as may hereafter be established' after 'Assistance'; and the proviso change 'to this program' to 'for such purpose' and after the word 'contributed' the first time it appears, strike the remainder of the subsection and insert 'for such purpose and for succeeding calendar years not to exceed 40 per centum of the total amount contributed for such purpose for each year'." [72 Stat. 265 (1958); 22 U.S.C. 1896.]

"Section 204. Title III of chapter II of the Mutual Security Act of 1954, as amended, which relates to technical cooperation, is amended as follows:

"(b) Amend section 306, which relates to multilateral technical cooperation and related programs, as follows:

"(1) In subsection (a), which relates to contributions to the United Nations Expanded Program of Technical Assistance and related fund, strike out '$20,000,000' and '1959' and substitute '$30,000,000' and '1960', respectively, and immediately after 'for such purpose' the last time it appears insert "(including assessed and audited local costs'." [73 Stat. 249 (1959); 22 U.S.C. 1896.]

5. United States Contributions

Fiscal year:	*Amount*	Fiscal year:	*Amount*
1951	$12,007,500	1956	$22,919,430
1952	11,400,000	1957	15,270,964
1953	8,171,333	1958	14,088,237
1954	8,500,000	1959 (estimate)[1]	22,000,000
1955	16,457,621	1960 (pledge)[1]	40,000,000

[1] Includes contribution to the Special Fund.

6. Source of Funds

Mutual Security Appropriation Acts.

K. UNITED NATIONS RELIEF AND WORKS AGENCY FOR PALESTINE REFUGEES IN THE NEAR EAST

1. Purpose

The purpose of the program is to provide subsistence for the Palestine refugees, while helping them to become self-sustaining. By providing reintegration-development programs as rapidly as political, financial, and other factors permit, the economies of the countries concerned will be strengthened, and conditions of peace and security will be insured.

2. Initial Authority for U.S. Participation

"* * * That there is hereby authorized to be appropriated to the President, out of any money in the Treasury not otherwise appropriated, not to exceed $16,000,000 as a special contribution by the United States to the United Nations for the purposes set forth in the resolution of the General Assembly of the United Nations of November 19, 1948, providing for the relief of Palestine refugees." [63 Stat. 16.]

"TITLE III

"Aid to Palestine Refugees

"SEC. 301. This title may be cited as the 'United Nations Palestine Refugee Aid Act of 1950.'

"SEC. 302. The Secretary of State is hereby authorized to make contributions from time to time before July 1, 1951, to the United Nations for the 'United Nations Relief and Works Agency for Palestine Refugees in the Near East', established under the resolution of the General Assembly of the United Nations of December 8, 1949, in amounts not exceeding in the aggregate $27,450,000 for the purposes set forth in this title.

"Authorization of Appropriations

"SEC. 303. (a) There are hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, not to exceed $27,450,000 to carry out the purposes of this title." [64 Stat. 203 (1951); 22 U.S.C. 1556.]

3. Current Authority for U.S. Participation

"SEC. 407. Palestine Refugees in the Near East.—There is hereby authorized to be appropriated to the President for the fiscal year 1955, not to exceed $30,000,000 to be used to make contributions to the United Nations Relief and Works Agency for Palestine Refugees in the Near East. * * * Whenever the President shall determine that it would more effectively contribute to the relief, rehabilitation, and resettlement of Palestine refugees in the Near East, he may expend any part of the funds made available pursuant to this section through any other agency he may designate" [68 Stat. 844 (1954); 22 U.S.C. 1927].

This section has been amended each year to authorize appropriation of funds for this purpose.

4. United States Contributions

Fiscal year:	*Amount*	Fiscal year—Continued	*Amount*
1949	$8,000,000	1955	$16,700,000
1950	10,000,000	1956	16,700,000
1951	25,450,000	1957	19,872,000
1952	50,000,000	1958	22,996,069
1953	16,000,000	1959	23,000,000
1954	15,000,000	1960 (estimate)	23,000,000

5. Source of Funds

Mutual Security Appropriation Acts.

2. EXPENDITURES AND MANPOWER RESOURCES OF INTERGOVERNMENTAL ORGANIZATIONS FOR HEALTH PURPOSES

Senator HUMPHREY. In the preceding pages, there have been presented the statutory authority for and the amounts of U.S. contributions to intergovernmental organizations.

The subcommittee recognized, however, that this information would be relatively complete only in the case of those organizations whose entire activity is in the field of health. This includes the World Health Organization, the Pan American Health Organization, and the United Nations Children's Fund.

But what of a regional organization such as the Caribbean Organization, or an international organization, such as the Food and Agriculture Organization, only a small proportion of whose activities and expenditures involve health? How much are such organizations actually spending for health and for what are they spending it?

To answer these questions, the Department of State, in response to a subsequent request, prepared a summary on the same organizations enumerated within section B(1), but covering additional ground as regards each.

The summary follows. It will be noted that, while it reiterates for purposes of clarity, some of the data within section B(1), it supplements such data at our request by including—

(*a*) lists of member nations for each intergovernmental organization;

(*b*) description and financial summary of health activities, particularly as regards organizations with limited health functions; and

(*c*) an indication of number of personnel involved in health activities.

Since sections B(1) and B(2) are so closely related, I am reprinting for purposes of additional clarity a letter from Assistant Secretary of State William Macomber, transmitting and describing the present information.

DEPARTMENT OF STATE,
Washington, D.C., December 3, 1959.

DEAR MR. CHAIRMAN: I refer further to your letter of September 18, 1959, requesting a report on the health programs of international organizations in which the U.S. Government participates and to my acknowledgment of that letter on October 2, 1959.

The report which you requested has now been completed and is attached to this letter in duplicate. In the preparation of this report the Department has considered as health programs only those which are designed to improve health or to cure illness. With this definition in mind, we have found 14 international organizations which have significant health programs and have assembled the information which you request on each of the 14.

In most instances, it has not been possible to segregate the precise figures as to the health budgets of these organizations nor has it been possible to find exact figures as to the number of employees who are engaged in health activities. Not having this kind of report in mind, most of the organizations have not prepared their budgets or their tables of organization in such a way as to make it possible to excerpt the health information in exact detail. Nevertheless, within the foregoing limitation every effort has been made to insure that the estimates of health budgets and health personnel for these 14 organizations are as accurate as is possible.

I trust this information will be helpful to you, and if there is anything further that I can do please feel free to call on me.

Sincerely yours,

WILLIAM B. MACOMBER, Jr.,
Assistant Secretary.

EXPENDITURES FOR HEALTH ACTIVITIES OF INTERNATIONAL ORGANIZATIONS IN WHICH THE UNITED STATES PARTICIPATES

A. ORGANIZATIONS AND PROGRAMS ENGAGED ONLY IN HEALTH ACTIVITIES

1. World Health Organization (WHO)

a. Origin and Development:

The establishment of the World Health Organization in 1948 was the result of efforts initiated at the United Nations San Francisco Conference in 1945 when a declaration was adopted drawing attention to the need for the early establishment of a single international health organization. The Economic and Social Council, at its first session on February 15, 1946, adopted a resolution setting up a Technical Preparatory Committee to develop constitutional proposals for consideration by an International Health Conference to meet later that year.

The Technical Preparatory Committee, which was composed of technical health experts designated by 16 governments, met in Paris in the spring of 1946, and drew up proposals for a constitution for consideration by the International Health Conference.

The Health Conference met in New York from June 19 to July 22, 1946, on which date the constitution of the World Health Organization was signed by representatives of 61 states. The Conference established an interim commission of 18 governments to make the necessary plans for the first meeting of the Health Assembly. The Interim Commission was authorized to arrange for the transfer to it or the World Health Organization of the functions of the International Office of Public Health, the League of Nations Health Association and the health functions of the United Nations Relief and Rehabilitation Administration, and to carry out certain essential international health activities pending the establishment of the permanent organization. The International Office of Public Health had been established by the convention of 1907 for the purpose of supervising the application of the International Sanitary Conventions.

The constitution of the WHO entered into force on April 7, 1948, when it had been ratified by 26 members of the United Nations.

b. Purpose:

The constitution of the WHO established as the objective of the organization "the attainment by all peoples of the highest possible level of health." In its work toward the achievement of this aim the WHO acts as a coordinating authority on international public health work; helps to build strong national health services capable of meeting essential health needs independent of outside aid; stimulates and works with governments on programs to eradicate epidemic, endemic, and other widespread diseases such as malaria, tuberculosis, and venereal diseases; promotes activities in the improvement of nutrition, environmental sanitation, maternal and child care and mental health; promotes and encourages research in the field of health; assists governments in setting up or reorganizing the structures of their health services; works for the standardization of diagnostic procedures; promotes the adoption of international standards with respect to food, biological, and pharmaceutical products; furnishes advice and direct aid to governments in emergencies; and provides fellowships and training services so that there will be available to governments trained local personnel for necessary public health work.

c. Membership:

As of June 30, 1959,[1] WHO had the following 87 members and 3 associate members:

Afghanistan, Albania, Argentina, Australia, Austria, Belgium, Bolivia, Brazil, Bulgaria, Burma, Byelorussian S.S.R. (inactive), Cambodia, Canada, Ceylon, Chile, China, Colombia, Costa Rica, Cuba, Czechoslovakia, Denmark, Dominican

[1] The number has increased to 101 as of May 1960.

Republic, Ecuador, El Salvador, Ethiopia, Finland, France, Germany, Ghana, Greece, Guatemala, Guinea, Haiti, Honduras, Hungary (inactive), Iceland, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Japan, Jordan, Korea, Laos, Lebanon, Liberia, Libya, Luxembourg, Malaya, Mexico, Monaco, Morocco, Nepal, Netherlands, New Zealand, Nicaragua, Nigeria (associate), Norway, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Rhodesia and Nyasaland (associate), Rumania, Saudi Arabia, Sierra Leone (associate), Spain, Sudan, Sweden, Switzerland, Thailand, Tunisia, Turkey, Ukrainian S.S.R. (inactive), Union of South Africa, United Arab Republic, United Kingdom, United States, Uruguay, U.S.S.R., Venezuela, Viet Nam, Yemen, Yugoslavia.

d. Health Activities:

All of WHO's activities, by the nature of the organization, are concerned with health. These are described in section b, Purpose, above.

e. Budget, Calendar Year 1959:

In May 1958, the World Health Assembly approved a gross budget of $15,365,660 for 1959. Taking into account miscellaneous income of $400,000, the assessment budget totaled $14,965,660.

f. United States Contribution:

The United States contribution amounted to 31.70 percent of the 1959 budget or $4,744,090. This amount has been paid from fiscal year 1960 funds.

In addition to the contribution to the regular budget, the United States contributed $3,000,000 to the WHO Malaria Eradication Program and $300,000 to a special research survey project undertaken by WHO. These contributions were made from fiscal year 1959 funds.

During 1960, the WHO plans to initiate a new community water supply program. The United States is contributing $300,000 from fiscal year 1960 funds to this program. The United States has also contributed $3,000,000 to the Malaria Eradication program and is contributing $500,000 for medical research from fiscal year 1960 funds.

The United States also contributed to the United Nations Expanded Program of Technical Assistance. This program, which allocates money to each of the United Nations Specialized Agencies to finance technical assistance projects, will be described in more detail in another section of this report.

g. Percentage of Budget Devoted to Health Activities:

All of WHO's budget is devoted to health.

h. Percentage of Personnel Devoted to Health Activities:

WHO employs approximately 1,900 persons including technical assistance experts and experts on the malaria eradication program, all of whom are engaged in health activities.

2. Pan American Health Organization

a. Origin and Development:

The Pan American Health Organization had its origin in a resolution adopted at the Second International Conference of American States, held at Mexico City in 1901–02, which recommended the calling of periodic public health conferences of representatives of the American Republics and the creation of a permanent international sanitary bureau in Washington. As a result of this resolution, the First General International Sanitary Conference of the American Republics was held in Washington in December 1902; this Conference established the Bureau and defined its functions. In October 1905, at the Second Inter-American Sanitary Conference, the first Pan American International Sanitary Convention was concluded which was the forerunner of the Pan American Sanitary Code of 1924. The name "International Sanitary Bureau" was changed to "Pan American Sanitary Bureau" in 1923.

At the Seventh Pan American Sanitary Conference, held in Havana in November 1924, a revised Pan American Sanitary Code was embodied in a new convention. It broadened the scope of the Bureau's activities, outlined the obligations of member states to the Bureau, and designated it as the central coordinating health agency of the member states of the Pan American Union.

The Twelfth Pan American Sanitary Conference, held in 1947, adopted the name "Pan American Sanitary Organization," approved a reorganization plan,

and agreed that the Organization should act as the regional agency of the World Health Organization.

At the Fifteenth Pan American Sanitary Conference held in 1958, the name of the Organization was changed to Pan American Health Organization to reflect more accurately the activities and purpose of the Organization.

b. Purpose:

The functions and objectives of the Pan American Health Organization include (1) a continuing attack on disease at its sources, to reduce or eliminate danger of transmission of disease and disease vectors in the Americas; (2) reduction or elimination of the necessity of costly quarantines; (3) stimulation and support of national health authorities in the Americas in their efforts to control disease, including assistance in connection with planning and operation of special health projects: (4) participation in and promotion of prompt reporting of existence of quarantinable disease. The Organization participates in the work of the World Health Organization by serving as regional office of that organization in the Western Hemisphere.

c. Membership:

As of June 30, 1959, PAHO had the following members or participating governments: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, France, Guatemala, Haiti, Honduras, Mexico, the Netherlands, Nicaragua, Panama, Peru, Paraguay Uruguay, Venezuela, the United Kingdom, and the United States.

d. Health Activities:

All of PAHO's activities, by the nature of the Organization, are concerned with health. These are described in section b, Purpose, above.

e. Budget, Calendar Year 1959:

In September 1958, the Directing Council approved a gross budget of $3,600,000 for 1959. Miscellaneous income is estimated to be $100,000, leaving an assessment budget of $3,500,000.

f. United States Contribution:

The United States contribution amounted to 66 percent of the 1959 budget or $2,310,000. This amount was paid from fiscal year 1960 funds.

In addition to the contribution to the regular budget, the United States contributed $3,000,000 to the PAHO Malaria Eradication Program from fiscal year 1959 funds.

During 1960, the PAHO plans to cooperate with the WHO in its community water supply program. The United States will contribute $200,000 to PAHO for this purpose from fiscal year 1960 funds. The United States has also contributed $2,000,000 to the PAHO Malaria Eradication Program from fiscal year 1960 funds.

The PAHO participates in the work of the Organization of American States Technical Cooperation Program to which the United States contributes. This program will be described in another section of this report.

g. Percentage of Budget Devoted to Health Activities:

All of PAHO's budget is devoted to health.

h. Percentage of Personnel Devoted to Health Activities:

PAHO employs approximately 620 persons, all of whom are engaged in health activities.

3. United Nations Children's Fund

a. Origin and Development:

The United Nations International Children's Emergency Fund was established by Resolution 57 (I) of the United Nations General Assembly in December 1946 to provide emergency feeding, clothing, and care for child victims of World War II, taking over that aspect of United Nations Relief and Rehabilitation Administration's (UNRRA) function when that organization was liquidated. Initially, the fund's resources were devoted mainly to the relief of children in Europe and in the Palestine area. In December 1950 the General Assembly by Resolution 417 (V) extended UNICEF for 3 more years and directed a shift of emphasis to programs of long term benefit to children of underdeveloped countries. In recognition of this shift in emphasis, the name of the organization

was changed by the General Assembly Resolution 802 (VIII) of October 1953 to United Nations Children's Fund, and its program was extended for an indefinite period.

b. Purpose:

The present purpose of the UNICEF program is to provide supplies, equipment, and training to governments for the establishment and expansion of programs designated to improve the health and welfare of mothers and children. Assistance which UNICEF, with the Specialized Agencies and the United Nations Bureau of Social Affairs providing technical guidance, makes available to governments falls in four main categories: maternal and child welfare services, communicable disease control, nutrition, and emergency aid.

c. Membership:

UNICEF is a program of the United Nations financed by voluntary contributions and administered by United Nations personnel, not an organizational entity which necessitates formal membership arrangements. In 1959, approximately 85 countries and territories have made pledges of financial support to the program.

d. Health Activities:

All activities of UNICEF are in the field of health, as broadly interpreted.

e. Budget, Calendar Year 1959:

It is estimated that expenditures during calendar year 1959 will total $23,350,000. Voluntary contributions from governments will total approximately $22,000,000.

f. United States Contributions:

The United States pledged $11,000,000 to UNICEF for calendar year 1959 subject to the limitation that the United States contribution will not exceed 50 percent of total government contributions. This contribution will be paid from fiscal year 1959 funds. In addition, the United States made available 99.9 million pounds of dried skim milk to UNICEF.

g. Health Budget of UNICEF:

The entire budget of UNICEF is devoted to health activities.

h. UNICEF Personnel Devoted to Health Activities:

UNICEF employs approximately 400 persons, all of whom are engaged in health activities.

B. ORGANIZATIONS AND PROGRAMS ENGAGED PARTIALLY IN HEALTH ACTIVITIES

*1. Caribbean Commission**

a. Origin and Development:

The Caribbean Commission is an outgrowth of the former Anglo-American Caribbean Commission established by a joint communique issued by the United Kingdom and the United States on March 9, 1942. In 1945, France and the Netherlands accepted invitations to participate as full members of the Commission.

An agreement signed at Washington, D.C., on October 30, 1946, by representatives of France, the Netherlands, the United Kingdom, and the United States formally established the organization as the Caribbean Commission. The agreement entered into force on August 6, 1948.

b. Purpose:

The purpose of the Commission is to improve the economic and social conditions of the peoples in the nonindependent areas of the Caribbean through encouraging and strengthening cooperation and through regular consultation among the governments and peoples concerned on matters of common interest, particularly agriculture, communications, education, fisheries, health, housing, industry, labor, social welfare, and trade.

c. Membership:

As of June 30, the Caribbean Commission had the following four members: France, Netherlands, United Kingdom, and United States.

*Reconstituted as Caribbean Organization.

d. Health Activities:

The Commission has but slight health activities, principally in the field of publications. In 1959 the Commission published pamphlets in The Healthy Living Series and engaged in an exchange series in nutrition.

e. Budget, Calendar Year 1959:

The gross budget amounted to $368,423. Taking into account miscellaneous income of $2,600, the assessment budget amounted to $365,823.

f. United States Contribution:

The United States is assessed 38.4 percent of the budget, which for calendar year 1959 amounted to $140,476. However, the United States pays its assessment on a split-year basis. From fiscal year 1960 funds, the United States has paid $70,238 toward the calendar year 1959 budget and will pay $71,762 toward the calendar year 1960 budget of the Commission. The total fiscal year 1960 contribution will amount to $142,000.

g. Health Budget of Caribbean Commission:

The Commission's health budget for calendar year 1959 amounted to approximately $850.00.

h. Caribbean Commission Personnel Devoted to Health Activities:

One employee of the Commission is engaged in health activities.

2. Food and Agriculture Organization (FAO)

a. Origin and Development:

The Food and Agriculture Organization had its origin in the United Nations Conference on Food and Agriculture, held at Hot Springs, Virginia, May 18 to June 13, 1943. At this Conference, representatives of 44 governments agreed that a permanent international body should be established to deal with the varied international problems of food and agriculture and recommended the establishment of an Interim Commission on Food and Agriculture to draw up a detailed plan. The constitution was signed in Quebec, Canada, on October 16, 1945, by representatives of 37 governments at the first session of the FAO Conference. The Interim Commission was dissolved and its records and property became the property of the Organization.

By agreement of the member governments, which were also members of the International Institute of Agriculture, established at Rome, Italy, under the convention of June 7, 1905, the functions and assets of the latter were transferred to FAO under a protocol signed March 30, 1946.

A portion of the agricultural-rehabilitation functions of the United Nations Relief and Rehabilitation Administration (UNRRA) was transferred to FAO as a result of an agreement between UNRRA and FAO signed at Washington, February 19, 1947.

b. Purpose:

The purposes for which the FAO was established are to raise levels of nutrition and standards of living; to secure improvements in the efficiency of the production and distribution of all food and agricultural products; and to better the condition of rural populations.

The functions of the Organization, outlined in article I of the constitution, are: to collect, analyze, interpret, and disseminate information relating to nutrition, food, and agriculture; to promote and, where appropriate, recommend national and international action with respect to (*a*) scientific, technical, social, and economic research relating to nutrition, food, and agriculture; (*b*) the improvement of education and administration relating to nutrition, food, and agriculture, and the spread of public knowledge of nutritional and agricultural science and practice; (*c*) the conservation of natural resources and the adoption of improved methods of agricultural production; (*d*) the improvement of the processing, marketing, and distribution of food and agricultural products; (*e*) the adoption of policies for the provision of adequate agricultural credit, national and international; and (*f*) the adoption of international policies with respect to agricultural commodity arrangements; to furnish such technical assistance as governments may request; to organize, in cooperation with governments concerned, such missions as may be needed to assist them to fulfill the obligations arising from their acceptance of the recommendations of the United Nations Conference on Food and Agriculture.

c. Membership:

As of June 30, 1959, FAO had the following 76 members:

Afghanistan, Argentina, Australia, Austria, Belgium, Bolivia, Brazil, Burma, Cambodia, Canada, Ceylon, Chile, Colombia, Costa Rica, Cuba, Denmark, Dominican Republic, Ecuador, El Salvador, Ethiopia, Finland, France, Germany, Ghana, Greece, Guatemala, Haiti, Honduras, Iceland, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Japan, Jordan, Korea, Laos, Lebanon, Liberia, Libya, Luxembourg, Malaya, Mexico, Morocco, Nepal, Netherlands, New Zealand, Nicaragua, Norway, Pakistan, Panama, Paraguay, Peru, Philippine Republic, Poland, Portugal, Saudi Arabia, Spain, Sudan, Sweden, Switzerland, Thailand, Tunisia, Turkey, Union of South Africa, United Arab Republic, United Kingdom, United States, Uruguay, Venezuela, Vietnam, Yemen, and Yugoslavia.

d. Health Activities:

FAO's contribution to health is in the field of nutrition. In this field, FAO cooperates closely with WHO and UNICEF. These three organizations have worked together in 1959 on the prevention of protein malnutrition and have prepared a handbook on milk products in human nutrition.

FAO's Division of Nutrition is continuing its assessment of existing levels of food consumption in various countries in relation to nutritionally desirable levels, this being a necessary first step if these levels are to be improved.

Moreover, FAO is continuing its long-term program of appraising the calorie and protein needs of various population groups. On the basis of these appraisals FAO's recommendations on nutritional needs of populations are being constantly changed and brought up to date.

In the field of food technology, FAO's Division of Nutrition is working on methods of improving traditional methods of food preservation (drying, smoking, and salting) in underdeveloped countries where the modern methods of preservation (canning and refrigeration) are too expensive.

FAO is also developing methods of testing international food additives to establish their safety.

In cooperation with UNICEF, FAO is engaged in a school feeding program to improve the nutrition of schoolchildren. These organizations make available dried skim milk for use in the schools of various countries around the world.

e. Budget, Calendar Year 1959:

The gross budget for the calendar year 1959 amounts to $8,500,000. Taking into account miscellaneous income of $177,500, the assessment budget amounts to $8,322,500.

f. United States Contribution:

The United States is assessed 32.51 percent or $2,705,644 of the 1959 budget plus a Working Capital Fund advance of $6,850, making the total United States contribution for calendar year 1959, $2,712,494. However, the United States pays its contribution to the FAO on a split-year basis. The total United States contribution for fiscal year 1960 amounts to $2,997,489 which represents a payment of $1,397,489 to the calendar year 1959 budget and $1,600,000 to the calendar year 1960 budget.

g. Health Budget of FAO, 1959:

In calendar year 1959, FAO's revised budget provided $522,632 for health activities.

h. FAO Personnel Devoted to Health Activities:

In calendar year 1959, FAO had 56 employees devoted to health activities of whom 5 were under the Expanded Technical Assistance Program.

3. Inter-American Children's Institute

a. Origin and Development:

Inter-American efforts on behalf of the welfare of children were inaugurated in 1916 with the convening of the First Pan American Child Congress at Buenos Aires, Argentina. At the Second Pan American Child Congress, held at Montevideo, Uruguay, in 1919, the creation of an American International Office for the Protection of Childhood was proposed and the Fourth Pan American Child Congress, held in Santiago, Chile, in 1924, formulated the statutes of the Institute.

In 1925, the Government of Uruguay adopted legislation providing for the establishment of the Institute in Uruguay and it was brought into existence on

June 9, 1927. In September 1957 the revised statute adopted by the Directing Council changed the name of the organization to the Inter-American Children's Institute.

b. Purpose:

The Institute is a center of social action, documentation, study, advice, and information in the Western Hemisphere on all questions relating to childlife and welfare. The Institute conducts bibliographical research, collects information by correspondence, and, on the request of member governments, cooperates in studies. It assists in organizing the Pan American Child Congresses. Its library at Montevideo serves as a permanent inter-American center of documentation on child health and welfare matters.

c. Membership:

As of June 30, 1959, the Inter-American Children's Institute had the following 21 members: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, United States, Uruguay, and Venezuela.

d. Health Activities of the Inter-American Children's Institute:

The Inter-American Children's Institute, being primarily concerned with all aspects of child welfare in the Western Hemisphere, places a primary emphasis on health matters. The Institute has recently dedicated special attention to the impact of nutrition upon infant mortality and child morbidity in Latin America through its cosponsorship, together with the Unitarian Service Committee of the United States, of a series of symposia in which a wide range of government and private bodies participated. In these meetings pediatricians, nutritionists, agricultural engineers, social workers, dietitians, and anthropologists interchanged proposals concerning pregnancy and the newborn, nutritional problems at various age levels, intestinal parasitosis, the improvement of basic food production, education and social-welfare programs, reduction of prices of essential foods in countries with scarce resources, responsibility of public health departments in nutrition improvement, and allied matters. The symposia were well publicized and influenced the subsequent development of several similar national study conferences. Spanish and English versions of publications resulting from the symposia have been widely disseminated. The Institute is also normally represented in significant inter-American meetings concerned with pediatrics, nutrition, crippled children, and similar subjects. Its library and statistical compilations at Montevideo are increasingly significant in the supply of basic data to individuals and groups making comprehensive studies of child health problems in the Western Hemisphere.

e. Budget, Calendar Year 1959:

In December 1958, the Directing Council approved a budget of $80,000.

f. United States Contribution:

The United States assessment amounted to 40 percent of the budget, or $32,000. However, because of a statutory limitation, the United States contributed $25,000. This amount was paid from fiscal year 1960 funds.

g. Health Budget of the Inter-American Children's Institute:

Approximately 60 percent of the budget of the Children's Institute is devoted to health activities.

h. Inter-American Children's Institute Personnel Devoted to Health Activities:

Sixty percent of the staff (12 persons) of the Children's Institute is engaged in health activities.

4. International Atomic Energy Agency

a. Origin and Development:

President Eisenhower, in an address to the General Assembly of the United Nations in December 1953, urged the establishment of an international organization to "devise methods whereby * * * fissionable material would be allocated to serve the peaceful pursuits of mankind." In 1954, a group of eight countries met in Washington to prepare a draft of a statute. In December 1954, a resolution was unanimously adopted by the General Assembly of the United Nations which expressed the hope that "the International Atomic Energy Agency would be established in order to assist in lifting the burdens of poverty, hunger, and disease." The statute conference in September 1956 was attended by 81 nations.

On October 26, 1956, the statute was signed by 70 states and a Preparatory Commission of 18 members was established. The statute came into force on July 29, 1957.

b. Purpose:

The Agency's basic objective as set forth in its statute is "to seek to accelerate and enlarge the contribution of atomic energy to promote health and prosperity throughout the world." To meet this objective the Agency will seek to encourage and assist research on, and the development and practical application of, atomic energy for peaceful uses.

c. Membership:

As of June 30, 1959, the International Atomic Energy Agency had the following 70 members:

Afghanistan, Albania, Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Burma, Byelorrussian S.S.R., Cambodia, Canada, Ceylon, China, Cuba, Czechoslovakia, Denmark, Dominican Republic, Ecuador, El Salvador, Ethiopia, Federal Republic of Germany, Finland, France, Greece, Guatemala, Haiti, Honduras, Hungary, Iceland, India, Indonesia, Iran, Iraq, Israel, Italy, Japan, Korea, Luxembourg, Mexico, Monaco, Morocco, Netherlands, New Zealand, Nicaragua, Norway, Pakistan, Paraguay, Peru, Philippines, Poland, Portugal, Rumania, Spain, Sudan, Sweden, Switzerland, Thailand, Tunisia, Turkey, Ukrainian S.S.R., Union of South Africa, U.S.S.R., United Arab Republic, United Kingdom, United States, Vatican City, Venezuela, Viet Nam, and Yugoslavia.

d. Health Activities of IAEA:

The Agency has a division whose primary concern is with health, safety and waste disposal. It evaluates health and safety hazards in all Agency projects and establishes standards for health and safety in connection with all Agency operations. In this connection IAEA has published a manual called "Safe Handling of Radioisotopes."

Moreover, the Agency is preparing studies which it anticipates will lead to the establishment of international standards or regulations for health and safety in the field of atomic energy. Health and safety advisory services will be provided to member states upon request.

The agency is working on the problem of waste disposal through the Panel on Radioactive Waste Disposal and expects that the work on this problem will increase in view of the need to set up an international register of sea disposals.

The Agency's Division of Isotopes is working on research in the field of safety and is supporting medical research using rare radiosotopes and radioisotope research into diseases prevalent in less developed, especially tropical, countries.

e. Budget, Calendar Year 1959:

The Agency's General Conference approved an assessment budget of $5,225,000 and an operational budget to be financed by voluntary contributions of $1,500,000 for 1959.

f. United States Contribution:

The United States was assessed 32.51 percent, or $1,698,648 of the 1959 budget. Taking into account a Working Capital Fund adjustment of $16,400, the United States contribution from fiscal year 1960 funds amounted to $1,682,248.

The United States pledged $750,000 to the Agency's operating budget for 1959 subject to the following conditions: $500,000 to be paid without reference to contributions from other member states, and $250,000 to match total contributions in excess of $1,000,000. As of September 30, 1959, $561,147 had been paid from fiscal year 1959 funds for this purpose. The same pledge, subject to the same conditions, was made for the calendar year 1960 operational budget to be paid from fiscal year 1960 funds.

In 1959, the United States also contributed $600,000 to the Agency to construct and equip a functional laboratory. This amount was paid from fiscal year 1959 funds.

g. Health Budget of IAEA:

It is estimated that the Agency's expenditures on health activities in calendar year 1959 will amount to approximately $380,000.

h. IAEA Personnel Devoted to Health Activities:

Approximately 31 employees are engaged in health activities.

5. International Council of Scientific Unions and Associated Unions

a. Origin and Development:

The International Council of Scientific Unions (ICSU) and Associated Unions had its origin in the Inter-Allied Conference on International Scientific Organizations, which was held at London in October 1918. Each country was advised to set up or recognize a national scientific body capable of representing the country on an international council, which would coordinate the work of the adhering national organizations and direct international scientific activity in fields not within the scope of existing international associations. At the same time, new international Unions relating to the major basic sciences were proposed to be organized to coordinate and develop activities then scattered among numerous small international societies.

An International Research Council was constituted provisionally at a conference held at Paris in November 1918 along the lines recommended at the October 1918 Conference. Statutes were adopted for this Council in Brussels in July 1919 at the First General Assembly of the International Research Council. These statutes, which were to expire in 12 years, were revised in Brussels in 1931 and the name of the organization was changed to the International Council of Scientific Unions (ICSU). The following are the scientific unions in ICSU and year they became members:

International Astronomical Union (1920)
International Union of Biochemistry (1955)
International Union of Biological Sciences (1922)
International Union of Pure and Applied Chemistry (1919)
International Union of Crystallography (1947)
International Union of Geodesy and Geophysics (1919)
International Geographical Union (1922)
International Union of History and Philosophy of Science (1947)
International Mathematical Union (1952)
International Union of Physiological Sciences (1955)
International Union of Pure and Applied Physics (1923)
International Scientific Radio Union (1922)
International Union of Theoretical and Applied Mechanics (1946)

b. Purpose:

The purpose of the International Council of Scientific Unions and its associated unions is to promote cooperation in scientific research and to direct, coordinate, and stimulate scientific investigations in the subject fields of the unions. To this end, the Unions' international congresses and conferences are held and reports are issued on the progress of cooperatively undertaken research.

c. Membership:

As of June 30, 1959, the Union had the following 42 members: Australia, Austria, Belgium, Brazil, Canada, Chile, China, Colombia, Czechoslovakia, Denmark, Federal Republic of Germany, Egypt, Finland, France, Greece, India, Indonesia, Israel, Italy, Japan, Mexico, Morocco, Netherlands, New Zealand, Norway, Pakistan, Peru, Philippines, Poland, Portugal, Rumania, Spain, Sweden, Switzerland, Tunisia, Union of South Africa, United Kingdom, United States, Uruguay, U.S.S.R., Vatican City, and Yugoslavia. This list includes only members of the International Council of Scientific Unions and not the associated unions as membership in the Unions varies.

d. Health Activities of ICSU:

There are no health activities per se in ICSU. It is merely the Council for a group of scientific unions who hold meetings and seminars on scientific subjects. Some of the seminars of three of these Unions (International Union of Biological Sciences, International Union of Biochemistry, and International Union of Physiological Sciences) are concerned with health questions.

e. Budget, Calendar Year 1959:

The budget of ICSU and its associated unions will amount to approximately $153,000.

f. United States Contribution:

It is estimated that the United States will contribute $24,486, or approximately 16 percent, from fiscal year 1960 funds.

g. Health Budget of ICSU:

In view of the nature of the organization, ICSU has no health budget as such.

h. ICSU Personnel Engaged in Health Activities:

As indicated in the foregoing, no ICSU personnel is engaged in health activities.

6. International Labor Organization (ILO)

a. Origin and Development:

The original constitution of the ILO formed parts XIII of the Treaty of Versailles of June 28, 1919, of the Treaty of St. Germain of September 10, 1919, and of the Treaty of Trianon of June 4, 1920; and part XII of the Treaty of Neuilly of November 27, 1919.

The Organization traces its origin from various proposals, dating from 1818, for improving the conditions and standards of labor by international action. In 1897, interested parties from the chief industrial nations of Europe formed the International Association for Labor Legislation which, being composed of individuals, was an unofficial body. This association founded an International Labor Office in Basel, Switzerland, in 1901, and in 1905, it held official conferences of government representatives in Bern. The association continued its work until World War I.

Resolutions were adopted by the General Federation of Trade Unions of Great Britain in 1916 and at workers' congresses in allied and neutral states in 1917 proposing labor clauses in the treaties of peace at the conclusion of the war and an international commission for supervising such labor clauses. They also asked that the labor office created by the International Association for Labor Legislation be made into an official organization. Accordingly, at the Peace Conference in Paris in 1919, a commission, composed of representatives of employers and workers as well as of governments, drafted the ILO's constitution for inclusion in the peace treaties, which, when ratified, established the International Labor Organization as an official intergovernmental agency, an autonomous associate of the League of Nations.

The dissolution of the League of Nations and the creation of the United Nations necessitated the revision of the ILO constitution. A General Conference of ILO in 1944 adopted a declaration redefining the Organization's aims and purposes. In October 1946, the ILO Conference adopted an instrument of amendment which severed its connection with the League and anticipated its new relationship with the United Nations. On April 20, 1948, the amended constitution came into effect.

b. Purpose:

The International Labor Organization is an intergovernmental agency established to assist in the raising of labor standards and in the improvement of working conditions.

Historically, the most important technique utilized by the ILO has been the adoption of labor standards in the form of conventions and recommendations for consideration and action by member states. More recently, the ILO has begun to emphasize national and regional training programs, advisory missions, surveys, and other activities of direct assistance to member states. It also prepares and makes available technical information on labor questions.

The work of the Organization covers a wide range of subjects, including hours of work, minimum age for employment, working conditions of women and young workers, workmen's compensation, social insurance, minimum wage machinery, labor standards in non-self-governing territories, industrial safety, statistics, migration for employment, conditions of work of seamen, the right of workers and employers to organize into associations of their own choosing, trade union rights, and forced labor.

c. Membership:

As of June 30, 1959, ILO had the following 80 members:

Afghanistan, Albania, Argentina, Australia, Austria, Belgium, Bolivia, Brazil, Bulgaria, Burma, Byelorussian S.S.R., Canada, Ceylon, Chile, China, Colombia, Costa Rica, Cuba, Czechoslovakia, Denmark, Dominican Republic, Ecuador, El Salvadore, Ethiopia, Federal Republic of Germany, Finland, France, Ghana, Greece, Guatemala, Guinea, Haiti, Honduras, Hungary, Iceland, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Japan, Jordan, Lebanon, Liberia, Libya, Luxembourg, Malaya, Mexico, Morocco, Netherlands, New Zealand, Nicaragua, Norway,

Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Rumania, Spain, Sudan, Sweden, Switzerland, Thailand, Tunisia, Turkey, Ukrainian S.S.R. Union of South Africa, U.S.S.R., United Arab Republic, United Kingdom, United States, Uruguay, Venezuela, Viet-Nam, and Yugoslavia.

d. Health Activities of ILO:

One of the basic functions of the International Labor Organization (ILO), as defined in its constitution, is "the protection of the worker against sickness, disease, and injury arising out of his employment." It has taken the initiative in formalizing and securing ratification of a number of international conventions and recommendations having direct bearing on the safety and health of workers. Illustrative of such actions was Convention No. 81 of 1947, which has been ratified by 30 countries, and which attempts to secure the enforcement of legal provisions relating to conditions of work and the protection of workers while engaged in their work, including safety and health provisions. Other conventions and recommendations have dealt specifically with medical examination requirements for certain groups, the prevention of industrial accidents, safety in the building industry and in mines, and the prevention of anthrax and lead poisoning. The International Labor Organization maintains close collaboration with the World Health Organization (WHO) and other international and national organizations concerned with disease prevention and related matters. It has rendered direct technical assistance to governments by furnishing pertinent information on request, by collaborating in the drafting of safety and health laws and regulations, by despatching experts to undertake surveys and furnish advice in the fields of occupational safety and health and labor inspection, and in other ways. It is now updating and expanding an older exhaustive compilation of occupational health and safety information, and it issues a quarterly journal concerned with occupational safety and health. It has published many basic studies on such subjects as "The Cost of Medical Care," "Safety Factories," and "Safety in Coal Mines." It has long been concerned with statistics on occupational accidents and diseases and with the classification, labelling, and transportation of dangerous substances.

e. Budget, Calendar Year 1959:

The ILO gross budget is $8,639,857. Miscellaneous income amounted to $110,000, leaving an assessment budget of $8,529,857.

f. United States Contribution:

The United States was assessed 25 percent, or $2,132,464. This amount was paid from fiscal year 1960 funds.

g. Health Budget of ILO.

The health budget of ILO is estimated at approximately $132,000.

h. ILO Personnel Engaged in Health Activities:

Approximately ten ILO employees are engaged in health activities.

7. Organization of American States Technical Cooperation Program (OAS/TCP)

a. Origin and Development:

The program of technical cooperation of the Organization of American States was initiated by a resolution of the Inter-American Economic and Social Council approved April 10, 1950, and revised September 28, 1956. This resolution established the basic principles of the program and set up a special account for technical cooperation to which member governments make voluntary contributions and from which funds are allocated by the Technical Cooperation Board for projects undertaken by the participating agencies.

b. Purpose:

The purpose of the technical cooperation program of the Organization of American States is to assist the Latin American countries in their economic development. The program is directed to technical education and provides training, instruction, and technical advice at regional training centers and educational institutions.

The Organization of American States technical cooperation program is limited to training centers or courses which are regional in nature. All countries of Latin America are eligible to send trainees to attend the centers. None of the program's funds is used to provide direct technical assistance to individual governments.

c. Membership:

The Technical Cooperation Program is administered by the Secretariat of the Organization of American States and is financed by voluntary contributions, thus is not an organizational entity which necessitates formal membership arrangements.

d. Health Activities of the OAS/TCP:

The Technical Cooperation Program of the OAS engages in certain health activities which include training courses in social welfare problems, training courses in nutrition and dietary matters, and a workshop on the care of crippled children.

e. Budget, Calendar Year 1959:

The Inter-American Economic and Social Council approved a total budget of $1,930,815 which includes $1,771,215 for approved projects, $75,895 for administrative expenses and $83,705 for the contingency fund.

f. United States Contribution:

The United States pledged $1,500,000 to the Technical Cooperation Program for calendar year 1959 subject to the limitation that the United States contribution not exceed 70 precent of total contributions from governments. It is estimated that the United States contribution will amount to $1,200,000. This contribution will be paid from fiscal year 1959 funds.

g. Health Budget of OAS/TCP:

The health budget of this Technical Cooperation Program amounts to approximately $200,000.

h. OAS/TCP Personnel Engaged in Health Activities:

It is not possible to give a figure as to the personnel engaged in health activities since a large part of the training is carried out in seminars in which the participants perform most of the instruction.

8. South Pacific Commission

a. Origin and Development:

The South Pacific Commission had its origin in the Canberra pact concluded between the Governments of Australia and New Zealand in January 1944. This pact had as its goal the establishment of a regional commission to promote the economic and social advancement of the peoples of the non-self-governing territories of the South Pacific region. On January 28, 1947, the two governments convened the South Seas Conference at Canberra and invited representatives of France, the Netherlands, the United Kingdom, and the United States to prepare an agreement for the establishment of a regional commission. This agreement was signed on February 6, 1947, and came into force on July 29, 1948.

On November 7, 1951, a new agreement was signed extending the scope of the Commission to include Guam and the Trust Territory of the Pacific Islands.

b. Purpose:

The purpose of the Commission is to promote the economic and social development and further the welfare and advancement of the peoples of the dependent territories administered by the six participating governments in the South Pacific region.

c. Membership:

As of June 30, 1959, the South Pacific Commission had the following members: Australia, France, Netherlands, New Zealand, United Kingdom, and United States.

d. Health Activities of the South Pacific Commission:

The South Pacific Commission has health programs in the following fields: health education, nutrition and diet, control of mosquito-borne diseases and tuberculosis, as well as an areawide epidemiological information service.

e. Budget, Calendar Year 1959:

The gross budget is $564,603. Taking into account miscellaneous income of $6,387, the assessment budget amounts to $558,216.

f. United States Contribution:

The United States contributes 12.5 percent, or $69,777 of the budget. This amount was contributed from fiscal year 1960 funds.

g. Health Budget of the South Pacific Commission:

The health budget of the South Pacific Commission amounted to approximately $64,000.

h. South Pacific Commission Personnel Engaged in Health Activities:

Seven employees of the Commission are engaged in health activities.

9. United Nations Educational, Scientific, and Cultural Organization

a. Origin and Development:

A principal forerunner of the United Nations Educational, Scientific, and Cultural Organization was the International Institute of Intellectual Cooperation whose statute was approved by the Council of the League of Nations and the League Assembly in 1924. The League Committee on International Cooperation served as the Governing body of the Institute. The Institute was closed during World War II and although it was reopened early in 1945, it went out of existence at the end of 1946 after UNESCO came into operation.

Plans for the establishment of UNESCO were initiated in 1942 at a series of meetings held by the Ministers of Education of the governments-in-exile located at London. In 1943 additional countries were represented at these meetings. At a meeting in April 1944 sponsored jointly by the Conference of Allied Ministers of Education and the United States, proposals were drawn up for a United Nations agency for educational and cultural reconstruction. A revised draft constitution was prepared by the United States and submitted to the Conference of Allied Ministers of Education in London in April 1945, together with the proposals and comments of more than 20 governments concerning this draft.

The constitution of UNESCO was completed and adopted at a conference held in London in November 1945 at the invitation of the Government of the United Kingdom, in association with the French Government. The UNESCO constitution came into force on November 4, 1946. Prior to this time, a preparatory commission was convened to prepare the UNESCO budget and to delineate the work program of the organization. The Preparatory Commission ceased to exist December 7, 1946, following the election of the Director General.

UNESCO received assets of the International Institute of Intellectual Cooperation which were transferred by the League of Nations to the United Nations.

b. Purpose:

The purpose of UNESCO is to contribute to peace and security by promoting collaboration among member states in the fields of education, science, and culture. In the accomplishment of this purpose, the Organization works to advance mutual knowledge and understanding by international conferences, expert studies and the dissemination of factual information concerned with education, the natural sciences, the social sciences, cultural activity, and mass communications; to promote the free flow of ideas by word and image; to encourage the exchange of persons, publications, and other materials of information; to assure the conservation and protection of books, works of art, and monuments of historical and scientific significance; and to collaborate with member states at their request in the development of educational, scientific, and cultural programs.

c. Membership:

As of June 30, 1959, UNESCO had the following 81 members: Afghanistan, Albania, Argentina, Australia, Austria, Belgium, Bolivia, Brazil, Bulgaria, Burma, Byelorussian S.S.R., Cambodia, Canada, Ceylon, Chile, China, Colombia, Costa Rica, Cuba, Czechoslovakia, Denmark, Dominican Republic, Ecuador, El Salvador, Ethiopia, Federal Republic of Germany, Finland, France, Ghana, Greece, Guatemala, Haiti, Honduras, Hungary, India, Indonesia, Iran, Iraq, Israel, Italy, Japan, Jordan, Korea, Laos, Lebanon, Liberia, Libya, Luxembourg, Malaya, Mexico, Monaco, Morocco, Nepal, Netherlands, New Zealand, Nicaragua, Norway, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Rumania, Saudi Arabia, Spain, Sudan, Sweden, Switzerland, Thailand, Tunisia,

Turkey, Ukrainian S.S.R., U.S.S.R., United Arab Republic, United Kingdom, United States, Uruguay, Venezuela, Vietnam, Yugoslavia.

d. Health Activities of UNESCO:

UNESCO's program of scientific documentation through which it encourages the establishment of scientific libraries, the reproduction of microfilms, the standardization of technical terms, and the translation of scientific documents can be considered, at least in part, as a health activity.

In addition, UNESCO is participating in a variety of projects which have health implications. A few of these are cell biology research, laboratory animal standardization, the use of radioisotopes in scientific research, and studies on human physiology under arid conditions. Many of the UNESCO educational projects also include public instruction in public health and sanitation.

UNESCO also makes an annual contribution to the Council for International Organizations of the Medical Sciences. This contribution helps to finance congresses, symposiums, and publications on health.

e. Budget, Calendar Year 1959:

UNESCO's gross budget is $13,406,544. Taking into account miscellaneous income of $792,510, the assessment budget is $12,614,034.

f. United States Contribution:

The United States was assessed 30.74 percent or $3,877,554. The United States received a credit of $149,224 and advanced the Working Capital Fund $61,480, making the total contribution paid from fiscal year 1960 funds $3,789,810.

g. Health Budget of UNESCO:

The health budget of UNESCO is estimated at approximately $115,000.

h. UNESCO Personnel Engaged in Health Activities:

It has not been possible to develop any significant figures as to the number of UNESCO employees engaged in health activities.

10. United Nations Expanded Program of Technical Assistance and Special Fund (ETAP)

a. Origin and Development:

Article 55 of the United Nations Charter provides that "the United Nations shall promote higher standards of living, full employment and conditions of economic and social progress and development." In its first session in December 1946 the General Assembly adopted Resolution 52(I) asking the Economic and Social Council to "study the question of providing effective ways and means of furnishing, in cooperation with the specialized agencies, expert advice in the economic, social, and cultural fields to member nations who desire this assistance."

The work which was done up to 1949 by the United Nations and the specialized agencies in providing technical assistance with funds from their regular budgets became the basis for Resolution 222(IX) of the Economic and Social Council creating an expanded program of technical assistance. This resolution, adopted on August 15, 1949, and approved by General Assembly Resolution 304(IV) on November 16, 1949, defined the objectives of the program and the principles and machinery through which it was to operate. The resolution provided that the program would be financed by voluntary contributions to a special technical assistance account maintained by the Secretary General of the United Nations. Funds are allocated from the central account to each of the participating organizations for the provision of experts, fellowships, and demonstration equipment to assist in the economic development of underdeveloped countries.

b. Purpose:

The purpose of the United Nations expanded program of technical assistance is to promote the economic development of underdeveloped countries through the provision of technical assistance on an international basis. The United Nations and the specialized agencies assist underdeveloped countries in strengthening their economies, especially in the fields of agriculture, health, and education; in raising the standard of living of their people; and in promoting the development of effective and responsible governmental administrative machinery.

c. Membership:

The Expanded Program of Technical Assistance is administered by the Secretariat of the United Nations and financed by voluntary contributions; thus, it is not an organizational entity necessitating formal membership arrangements.

d. Health Activities of ETAP:

The health activities of this program are carried through other organs of the United Nations, principally WHO and FAO, and are consequently described elsewhere in this report.

e. Budget, Calendar Year 1959:

In the fall of 1958, the Technical Assistance Committee approved a total net program of $31,186,000 to be allocated as follows:

Agency	*Amount*
United Nations Technical Assistance Administration	$6,960,025
Food and Agriculture Organization	8,226,600
International Atomic Energy Agency	200,000
International Civil Aviation Organization	1,350,750
International Labor Organization	3,441,100
International Telecommunication Union	335,700
United Nations Educational, Scientific, and Cultural Organization	4,821,725
World Health Organization	5,441,600
World Meteorological Organization	408,500
Subtotal	31,186,000
Technical Assistance Board	1,992,000
Total	33,178,000

f. United States Contribution:

The United States pledged $38,000,000 to the Expanded Program and Special Fund for calendar year 1959 subject to the limitation that the United States contribution not exceed 40 percent of total government contributions. It is estimated that the United States will contribute $12,000,000 to the Expanded Program of Technical Assistance and $10,000,000 to the Special Fund [2] from fiscal year 1959.

g. Health Budget of ETAP:

Since the ETAP health programs are carried out by other agencies, and since the administrative program budgets of the ETAP and the implementing agencies are closely interrelated, it is not possible to give a precise figure as to the cost of ETAP health activities. It is estimated, however, that they amount to approximately $5,077,000.

h. ETAP Personnel Devoted to Health Activities:

No ETAP personnel, as such, is engaged in health activities, though many health employees of other organizations are paid from ETAP funds as described elsewhere in this report.

11. United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA)

a. Origin and Development:

Acting on the report of the United Nations Mediator in Palestine, calling attention to the need for international assistance to the refugees created by the Israeli-Arab conflict, the Third General Assembly in its Resolution 212(III), November 19, 1948, established the U.N. Relief for Palestine Refugees (UNRPR).

The Fourth General Assembly, recognizing that continued assistance would be necessary, by its Resolution 302(IV) of December 8, 1949, established the United Nations Relief and Works Agency for Palestine Refugees in the Near East in order to carry out a program of direct relief and works in collaboration with local governments. The transfer of responsibility from UNRPR to UNRWA became effective April 1, 1950.

The Fifth General Assembly by Resolution 393(V) of December 2, 1950, assigned the Agency the further responsibility of seeking the reintegration of the

[2] The Special Fund is not described in this report because it has not, as yet, implemented any projects which pertain to health.

refugees into the economic life of the Near East, either by repatriation or resettlement.

b. Purpose:

The purpose of the program is to provide subsistence for the Palestine refugees, while helping them to become self-sustaining. By providing reintegration-development programs as rapidly as political, financial, and other factors permit, the economies of the countries concerned will be strengthened, and conditions of peace and security will be insured.

c. Membership:

UNRWA is administered as part of the Secretariat of the United Nations and is financed by voluntary contributions, thus, is not an organizational entity which necessitates formal membership arrangements.

d. Health Activities of UNRWA:

In connection with its refugee program, UNRWA is engaged in extensive health activities. It operates hospitals, medical and dental clinics, laboratories, and pharmacies. It has programs for maternal and child care, for tuberculosis control, for school health services as well as for the supplementary feeding of the ill and undernourished.

e. Budget, Calendar Year 1959:

UNRWA is financed primarily by voluntary contributions from governments. The Agency will receive approximately $33,000,000 from governments for the calendar year 1959. In addition, various private and international agencies and a few governments in the Middle East area contribute goods and services and, in the case of the private and international agencies, small sums of cash directly to the refugees in the area. These contributions are valued at approximately $2,000,000 for calendar year 1959.

f. United States Contribution:

The United States contributes 70 percent of government contributions. This amounted to $23,000,000, which was paid from fiscal year 1959 funds.

g. Health Budget of UNRWA:

Although calendar year 1959 is not yet finished, it is estimated that UNRWA will spend approximately $2,700,000 on health activities during calendar year 1959.

h. UNRWA Personnel Devoted to Health Activities:

Because of the interchange of employees between functions and the large number of short-term local employees involved, it is not possible to give more than a general estimate as to the number of employees engaged in health activities. Keeping this in mind it is estimated that 10 professional international and 500 local employees are engaged in health activities.

3. ROLE OF WORLD HEALTH ORGANIZATION IN MEDICAL RESEARCH

Senator HUMPHREY. The fourth in our series of committee prints was devoted to the World Health Organization. The ninth committee print was devoted to the Pan American Health Organization which serves as regional office in the Americas for the World Health Organization.

As exhibits for the present volume, therefore, there have been selected only relatively more recent informational materials. It is presented in the form of documentation developed for and by the Thirteenth World Health Assembly in Geneva, May 1960.

This series of items relates to the WHO intensified program of medical research. These items consist of:

(*a*) An excerpt from the Annual Report of the Director General to the World Health Assembly and to the United Nations regarding medical research;

(*b*) The item which appeared on the assembly's agenda as regards the intensified program of medical research;

(*c*) The resolution adopted by the Thirteenth World Health Assembly on the intensified program;

(*d*) A summary of the work of the Thirteenth World Health Assembly by its distinguished President, Dr. H. B. Turbott, based on an article in the July 1960 issue of the periodical, "United Nations Review," published by the United Nations office of Public Information.

(*e*) An article, "The Price of Health," describing the financial resources available to WHO, as published in the July 1960 "WHO Chronicle."

EXCERPT OF ANNUAL REPORT OF THE DIRECTOR GENERAL (WHO) TO THE WORLD HEALTH ASSEMBLY AND UNITED NATIONS [3]

In resolution WHA11.35 the Eleventh World Health Assembly requested the Director General to conduct a study of the role of WHO in research and to prepare a plan of research based on that study. The study and plan with cost estimates were to be transmitted to the twenty-third session of the Executive Board and to the Twelfth World Health Assembly.

The study on the role of WHO in medical research was presented to the Board, but it was not possible to prepare the detailed plan of research in the short time available. The Board considered the study in detail, endorsed the principles outlined in it and authorized the Director General to continue the planning and to submit his proposals, with budget estimates, to the Twelfth World Health Assembly.

The plan of research was evolved in two phases. First, a review was made by the Secretariat—with whatever consultant help was needed—of all research recommendations of previous expert committees and study groups. Then a series of meetings of what have been called scientific groups was convened to evolve in some detail proposals for research suitable for international action in accordance with the principles endorsed by the Board.

The plan for research thus submitted to the Twelfth World Health Assembly made no claim to comprehensiveness, but was devised as a logical expansion of the established WHO program; it took into account the limitations which the present stage of scientific development imposes on the investigation of certain problems and was based on an estimate of the personnel and material resources likely to be available.

The choice of the scientific domains for the proposed WHO research program was based on the following considerations:

In the world as a whole, communicable diseases are still the greatest hazard to man's health and in many parts of the world they are clearly the outstanding health problem. WHO has for a number of years promoted the coordination of research on communicable diseases and there is therefore a sound basis for expansion. Within this large domain of the communicable diseases, special attention has been given to research on problems of the virus diseases—because their significance is increasing—and on those of diseases prevalent in tropical countries.

In the highly industrialized countries, chronic diseases—metabolic, degenerative and neoplastic—have become health problems of prime importance. Research in cancer and cardiovascular diseases was therefore a natural choice for the plan of the initial year.

Many health problems arise from the rapidly expanding use of fissionable materials for peaceful ends, and the consequent increasing exposure of man to ionizing radiations, so that medical research on those problems is one of the highest priorities of our age. Closely connected are the effects of ionizing radiations on generations unborn and therefore research in radiation biology and medicine and human genetics has been included in the initial programme.

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[3] World Health Organization, "The Work of WHO–1959," Annual Report of the Director General to the World Health Assembly and to the United Nations, official records, No. 98, Geneva, March 1960, pp. 38–39.

Next to the communicable diseases, problems of nutrition are of the widest significance for the health of the world. Nutrition is also closely concerned in some of the important problems of cancer and cardiovascular diseases, and of certain infections and infestations. WHO has already engaged in some relevant research and the program proposals for the initial year are its logical continuation.

The scientific domains mentioned are interrelated in many ways: there are, for instance, the borderlands between virus and cancer research, between cancer research and ionizing radiations, between ionizing radiations and genetics. The connections between research in nutrition and other fields have already been mentioned.

The Twelfth World Health Assembly approved in principle the plan of research proposed for the initial year 1960, decided that an Advisory Committee on Medical Research should be set up to provide the Director General with the necessary scientific advice and also requested the Director General to continue research planning, with the assistance of the Advisory Committee, and to report to the twenty-fifth session of the Executive Board on the plans and priorities proposed.

Research planning therefore continued throughout the year. Five scientific groups had met in 1958 and there were twenty-five such meetings in 1959, in which a total of 222 consultants and temporary advisers from all parts of the world took part in the extensive planning.

The Director General also proceeded to set up the Advisory Committee on Medical Research. The Assembly had decided that its chairman should be appointed by the Director General but made no provision as to its size; the Director General decided that it should consist of eighteen members in addition to the chairman.

Members of the Advisory Committee were appointed for four, three or two years, one-third to each group, so as to assure rotation of membership after the first two years. Dr. Arvid Wallgren, Professor Emeritus of Pediatrics, Karolinska Institut, Stockholm, was appointed Chairman.

The Assembly made provision in the regular budget for the intensified medical research program and also set up a Special Account for Medical Research to which should be credited any voluntary contributions that might be received. The Special Account is to be used to supplement the provision made in the regular budget for the World Health Organization's extended assistance to medical research programs.

These decisions of the Twelfth World Health Assembly have made medical research a major regular program activity of the Organization. The Director General has accordingly terminated the provisional Special Office for General Medical Research Planning (whose function was merely to expedite the implementation of resolution WHA11.35) and formed, as part of the headquarters organization, reporting directly to him, the Office for Research Planning and Coordination, to act as the Secretariat of the Advisory Committee on Medical Research.

The Advisory Committee on Medical Research met for the first time from 7 to 16 October. It reviewed the Organization's current and proposed research program, which had been based on the reports of the several scientific groups, and in this way the Director General has been able to use the advice of the Committee in drafting his proposals for the research program and budget, for 1960 and 1961.

Besides the priorities in subject matter, certain priorities also had to be established for the types of research to be undertaken within each subject. The main emphasis has been given to a group of functions that may be called services to research. Those are services designed to assist research workers, in their several fields throughout the world. Among them is the standardization of nomenclature, techniques and equipment in order that findings and results arrived at in different countries may be comparable. Closely connected with such standardization is the expansion of the WHO system of international reference centers for the identification of certain types of viruses and malignant tumors. International scientific communciations will be further promoted by a series of small meetings of research workers in selected fields and by an exchange of scientists concerned in WHO-supported research projects.

Original investigative work will also be supported by technical advice and grants in aid. Within this category, first priority is accorded to coordinated collaborative research in selected subjects, by scientists in different laboratories

and countries, working according to agreed and uniform protocols. In the same class are certain epidemiological field studies, field trials of vaccines or drugs, and certain population studies covered by the program.

To insure the proper allocation of grants in aid of individual research, a procedure has been prescribed to govern applications for, and the award of, research grants; and an information booklet and application forms have been prepared for interested scientists and organizations.

The training of research workers will be an increasingly important part of the program and two types of training awards are being provided. The Senior Research Training Award is designed to bring forward the future leaders of medical research. Candidates will be chosen by a group of men of recognized distinction in research, and applicants must give evidence of proven research ability. The Junior Research Training Award will give a chance to promising young graduates to show whether they can develop into investigators.

An international program of medical research on this scale has not been previously undertaken. The administrative organization necessary to the program must be built up carefully, for the established patterns of national research organizations are seldom appropriate.

At the end of 1959, nevertheless, program planning and administrative and organizational arrangements were sufficiently advanced for the intensified research program to start at the beginning of 1960.

WORLD HEALTH ORGANIZATION

THIRTEENTH WORLD HEALTH ASSEMBLY

Provisional agenda item 2.7

MARCH 3, 1960.

INTENSIFIED PROGRAM OF MEDICAL RESEARCH

1. Subsequent to the Twelfth Assembly, research program planning continued systematically. In particular, in addition to the Scientific Groups mentioned in *Official Records* No. 95, Annex 5, the following Groups met up to February 29, 1960:

Scientific Group on Ophthalmological Aspects of Onchocerciasis.
Scientific Group on Research in Bilharziasis (Chemotherapy).
Scientific Group on Filariasis and on Non-Ophthalmological Aspects of Onchocerciasis.
Scientific Group on Malaria Research.
Scientific Group on Treponematosis Research.
Scientific Group on Research on the Evaluation and Testing of Insecticides.
Scientific Group on Brucella Vaccine Trials in Man.
Scientific Group on Neoplastic Diseases of Animals.
Scientific Group on the Carcinogenicity of Food Additives.

2. Pursuant to resolution WHA12.17,[4] the Director-General proceeded with the establishment of the Advisory Committee on Medical Research and the appointment of its chairman.

2.1 Its composition is as follows:

Chairman:

Dr. Arvid J. Wallgren, Emeritus Professor of Pediatrics, Karolinska Institute, Stockholm, Sweden.

Members:

Prof. Louis van den Berghe, Director of the Institut pour la Recherche scientifique en Afrique centrale (IRSAC), Bukavu, Belgian Congo
Prof. Daniel Bovet, Nobel Prize for Medicine and Physiology, Director of the Department of Therapeutic Chemistry, Instituto Superiore di Sanità, Rome, Italy
Prof. Louis Bugnard, member of the Académie de Médecine, Director of the Institut National d'Hygiène, Paris, France
Sir Macfarlane Burnet, O.M., F.R.S., director of the Walter and Eliza Hall Institute of Medical Research, Melbourne, Australia
Prof. Carlos Chagas, director, Institute of Biophysics, University of Brazil, Rio de Janeiro, Brazil

[4] *"Handbook of Resolutions and Decisions,"* 5th ed., p. 106.

Prof. Josef Charvat, director of the 3d Department of Medicine, Charles University, Prague, Czechoslovakia
Prof. Ignacio Chavez, director, National Institute of Cardiology, Mexico, Mexico
Prof. Hermann Chiari, director, Institute of Pathological Anatomy, University of Vienna, Vienna, Austria
Prof. Zinaida Ermolieva, corresponding member of the U.S.S.R. Academy of Medical Sciences, professor of medical microbiology, Central Advanced Medical Training Institute, Moscow, U.S.S.R.
Prof. Corneille Heymans, Nobel Prize for Medicine and Physiology, director, Institute of Pharmacology and Therapeutics of the Rijksuniversität, Ghent, Belgium
Prof. Austin Bradford Hill, C.B.E., F.R.S., director, Department of Medical Statistics and Epidemiology of the London School of Hygiene and Tropical Medicine, London, United Kingdom
Sir Harold Himsworth, K.C.B., F.R.S., secretary, Medical Research Council, London, United Kingdom
Prof. V. R. Khanolkar, president, International Union against Cancer, Bombay, India
Prof. Antoine Lacassagne, Membre de l'Institut, emeritus professor at the Collège de France, Paris, France
Dr. Robert F. Loeb, emeritus bard professor of medicine, Columbia University, New York, United States of America
Dr. Wilhelm Löffler, emeritus professor of medicine, University of Zürich, Zürich, Switzerland
Prof. P. G. Sergiev, vice-president of the U.S.S.R. Academy of Medical Sciences, director of the Institute of Malaria, Medical Parasitology and Helminthology, Ministry of Health, Moscow, U.S.S.R.
Dr. James A. Shannon, director, National Institutes of Health, Bethesda, United States of America

2.2 This committee is being considered as an expert advisory panel, pursuant to resolution WHA12.17, and the Director-General will report on further appointments accordingly.

2.3 The first session of the advisory committee took place from October 7 to 16, 1959.

3. The advisory committee reviewed the extensive documentation on the proposed 1960 and 1961 medical research program, commented on each subject as well as on the general scientific and organizational aspects of the program. The individual subjects reviewed were: malaria, tuberculosis, treponematoses, leprosy, onchocerciasis, bilharziasis, virus diseases, insecticide resistance and vector control, veterinary public health, antibiotics, cancer, cardiovascular diseases, radiation and genetics, and biological standardization.

3.1 The advisory committee did not recommend any priorities in regard to diseases or groups of diseases since it felt that these were already realistically determined by the program evolution of the organization. The consideration of priorities in respect to types of activities in relation to any of the various diseases or disease groups of public health importance permeated the entire proceedings of the committee. It emerged that high priority should be given to services to research, such as the standardization of nomenclature, techniques or equipment, to reference centers for the identification of micro-organisms, tissues, parasites, etc., to the improvement of communications among and the training of research workers. Next in priority would be demographic studies into the varying incidence or prevalence of diseases and international collaborative coordinated research projects of major WHO program significance.

4. Taking into account the recommendations of the advisory committee, the Director-General developed the research program which was submitted to the Executive Board at its twenty-fifth session and is now before the Assembly in Official Records No. 100, appendix 9.

Resolutions of the World Health Assembly

Thirteenth World Health Assembly

WHA13.64
May 20, 1960.

Intensified programme of medical research

The Thirteenth World Health Assembly,

Having considered the Director-General's report on the Intensified Programme of Medical Research.[5]

[5] Document A13/P&B/4 & Add. 1.

Considering the importance of the training of technicians in the basic medical sciences, which are also fundamental to the development of scientific research;

1. *Notes* the Report of the Director-General;
2. *Endorses* the action taken by the Director-General;
3. *Recommends* to governments to give due attention to the development of the sciences basic to medical research and to the training of professionals in these basic medical sciences; and
4. *Requests* the Director-General to give due emphasis in the research programme to the training of specialists in the sciences basic to medical research.

Twelfth Plenary Meeting, 20 May 1960.

Tackling Humanity's Health Problems

(Published in July 1960 WHO Chronicle)

THE WORK OF THE 13TH WORLD HEALTH ASSEMBLY IS REVIEWED BY ITS PRESIDENT

Dr. H. B. Turbott, New Zealand's Director-General of Health

To set the scene for this account of the work of the 13th World Health Assembly, which met in Geneva from May 3 to 20, I cannot do better than quote from the opening speech of my predecessor, the outgoing President, Sir John Charles, Chief Medical Officer at the Ministry of Health of the United Kingdom:

"The World Health Organization is marching and must continue to advance into an epoch and a world where there are two main groups of problems: the problems, largely environmental, nutritional and epidemiological, which confront certain groups of member states—the problems of states adolescent in the field of health; and on the other hand the problems of great communities which, while still having to contend with deficiencies in those basic needs I have mentioned, are equally concerned with the problems of middle-aged and elderly populations.

"It is a mistake to set these two sets of problems side by side, and to make too strict an antithesis between them. WHO and the nations composing it are concerned both with the extension of life of the middleaged and elderly—of those who have already contributed to the welfare of their community and enjoyed its privileges—and with the provision of a life to be lived and enjoyed in all its fullness by the millions of children who are with us now, and will be added to our numbers—whose destiny it is to inherit the earth.

"WHO is one of the great liberators of the human spirit. It brings the heart and the reason of Pascal into one great desire to serve humanity, and it is the proud honor of this Assembly to be the servants of that desire."

It was a proud honor for me to be elected to preside over such an assembly. I fortunately had three vice presidents to assist me in my task. They were Dr. Y. Ben Abbes from Morocco, Prof. R. Baranski from Poland and Dr. J. M. Baena from Colombia. As chairman of the Committee on Program and Budget, the Assembly chose Col. M. K. Afridi, of Pakistan, and as chairman of the Committee on Administration, Finance and Legal Matters, Dr. M. B. Bustamante, of Mexico.

To my mind, this assembly marked an important step forward for the World Health Organization in several respects. First and foremost there was the increase in membership. Three new member states and eight new associate member states bring the organization's membership up to 101. The new members are Cameroun, Kuwait, and Togo, and the new associate members are Cyprus, the Central African Republic, the Republic of the Congo, the Republic of the Ivory Coast, the Gabon Republic, the Republic of the Upper Volta, the Republic of the Niger and the Federation of Mali.

Many speakers welcomed the new members and it was pointed out that with the emergence of new nations in Africa the World Health Organization may look forward to many more applications for membership from that region.

Malaria eradication

As in previous assemblies, malaria eradication was one of the central topics on the agenda. The Director-General's report to the assembly rightly stressed that the chief purpose of the malaria eradication campaigns was a humanitarian one. Indeed, what we want is to relieve the hardship and misery of the millions of people who continue to be affected by this terrible disease. The Director-General was also right in pointing out that, in view of the increasing resistance of

insects to insecticides, no country, however safe it may appear now, could be considered as definitely protected from malaria.

We must also consider the great economic loss which is caused by malaria, even now when the rate of infection is considerably reduced. The Director-General stated that as long as malaria remains endemic, it will be responsible for heavy hospital costs, cause absenteeism, slow down the pace of production, hamper education and increase the death rate due primarily to other diseases; moreover, much malaria mortality occurs in childhood, thus causing the wastage of potentially useful members of the community.

One of the most striking points made by the Director-General in his annual report is related to malaria's role in the development of the economic and social potentials of the underdeveloped areas of the world.

"Wealth," he said, "cannot be built on ill health, and malaria is undoubtedly one of the main causes of illness in most of the countries of Asia, Africa and the Americas.

"The economic advantages which are bound to result from the elimination of this disease were already envisaged by Ronald Ross. Speaking more than 50 years ago to the Liverpool Chamber of Commerce, he made that truly visionary statement: 'It may even happen that such a wild idea as killing mosquito grubs to prevent malaria may assist in giving to civilization the gift of another half of the world: the Tropics. We never know, when we plant one of the seeds of science, into how great a tree it may grow some day.' "

Today this seed has ripened, and it seems to me that WHO has reached the point of no return in the pursuit of malaria eradication. Our experience is widening, and our fundamental research continuing, so that the specter of mosquito resistance does not seem to be insurmountable. Nevertheless, what has already been accomplished will be wasted unless the global objective is achieved, and for this money is needed, more money than is available now.

Another obstacle the eradication program is coming up against is staff shortage. While there are still more than a thousand million persons living in the malarious areas of 133 different countries and territories, the total number of national professional personnel—medical officers, entomologists and engineers—employed full time in malaria programs amounts to some 1,500, or not more than one professional to every 700,000 persons. Doctors, it was pointed out, are scarce in nearly all countries outside continental Europe and parts of the American region. The most severe shortage, however, is that of engineers and entomologists. Some countries are making good use of lay volunteers in case detection.

Along these lines, the assembly expressed satisfaction with the technical achievements of the worldwide malaria eradication campaign but, on the financial side, stated that the stage has been reached when the financing of eradication operations through the malaria eradication special account on a voluntary basis was not possible without the full support of all the economically more privileged countries of the world. It was decided to establish an official register listing areas where malaria eradication had been achieved, after inspection and certification by a WHO evaluation team.

Communicable diseases

Another enemy, smallpox, retains its high priority in WHO's work. Countries with active vaccination campaigns are reporting freedom, or rapidly lessening incidence, while others are stepping up their smallpox programs. Pakistan is busy with compulsory vaccination. India is probing the methodology of vaccinating the entire population within 2 years. The writing is on the wall. The eradication of smallpox is on the way.

Venereal diseases, tuberculosis, leprosy, trachoma are all under attack on a world front. Bilharziasis, another stultifier of man's efforts in the tropical belt of the world, increasingly a danger as millions of acres come under irrigation, provides a further challenge which the organization is accepting. Each Assembly sees WHO more deeply engaged in the fight against communicable diseases.

The Assembly defined the role of WHO in radiation health to include the protection of mankind from ionizing radiation hazards, whatever their source, and the development of medical uses of radiation and radioactive isotopes. It was deemed necessary to emphasize the need of teaching and training of technical personnel of member countries and to assist these countries to accept their responsibilities and accelerate their activities in the public health aspects of radiation from all sources.

We adopted a program of work for 1961, with a working budget of $18,975,354. This figure represents the Director General's proposal of $18,569,620, with addi-

tions introduced during the Assembly, including $200,000 to finance assistance for new members and associate members.

The additional $200.000 was voted on the initiative of the U.S. delegation. Dr. H. van Zile Hyde, of the U.S. Public Health Service, recommending the adoption of his delegation's resolution, said that several new members had joined WHO during the current Assembly—and there were more to come—for whom provision should be made in the budget.

"They have many and difficult problems, and WHO should help to expand health services in these countries and territories," he said.

Six countries were elected to designate one person each to serve on the WHO Executive Board. They are Argentina, Ghana, Jordan, the Republic of Korea, Thailand, and the United Kingdom. The 12 other members of the Board are from the following countries: Brazil, France, Guatemala, Iran, Ireland, Luxembourg, Nepal, Peru, the Republic of Viet-Nam, Sudan, the U.S.S.R., and Venezuela.

The Assembly took the necessary legal action to authorize the construction of a new headquarters building for the organization in Geneva, at a cost not exceeding 40 million Swiss francs. The Director-General was asked to conclude an agreement with the Swiss Confederation and the Canton of Geneva and to arrange for the necessary contracts with the architects, builders, and suppliers. To me this seems another important milestone that has now been passed.

Other decisions taken by the Assembly included the indefinite postponement of a World Health Year; it was considered that the organization could not afford to divert funds and personnel from urgently needed health campaigns. An intensified program of medical research was endorsed by the Assembly, and the necessity for training qualified personnel essential to its execution was firmly underlined.

Eradication of polio?

Technical discussions at the Assembly were concerned with the role of immunization in communicable disease control. Opening the discussion, Professor Victor Zhdanov, of the U.S.S.R. Academy of Medical Sciences, foreshadowed the eradication of poliomyelitis as a practical policy.

Drawing a parallel with diphtheria, Professor Zhdanov pointed out that "experience in many European countries, such as Britain, France, and the Scandinavian countries, and in many cities and localities in the Soviet Union and the United States of America, shows that correctly organized and systematically carried out immunization and reimmunization of children against diphtheria leads to the practical eradication of this infection among the population."

In principle, he continued, it should be possible to obtain similar results with poliomyelitis. Although, even a few years ago, it was still not realistic to hope for eradication, the living poliovirus vaccine now available increases resistance of the cells, thus hindering multiplication of the virus. This should lead to diminished circulation of the virus and, if a large percentage of the population is immune, will bring about conditions similar to those achieved in the case of diphtheria.

On the subject of tuberculosis, a number of speakers disagreed with the tendency to consider the improvement of living conditions, housing, nutrition, and social as well as economic environment in general as the main task in fighting and eradicating tuberculosis. From this point of view tuberculosis has to be considered, primarily, as an infectious disease which can occur in epidemic form under the best economic conditions as well as the worst, and though the means to prevent this disease exist, increasingly rapid international transport intensifies the danger of infection even in countries with the highest standards of public health. An interesting point in the discussion on tuberculosis was the stress laid on the undiminished value of sanatorium treatment in countries that have the necessary equipment.

In conclusion of the technical discussion on immunization, it was agreed that by and large smallpox vaccination has first priority. Epidemiological conditions, however, may vary even within the same country, so that priorities in immunization may also vary from time to time. In some countries even measles—not generally considered a very high priority—appeared to be of such importance that it was very desirable to develop an effective method of vaccination against the disease. At present, however, the report recognizes, no practical measures are as yet available.

In the report of the discussion, cooperation on the part of the public receives considerable attention.

"Vaccination," it says, "should become the people's program, with government participation [rather than] the government's program, with people's participation." It stresses that, for the success of all programs, it is essential "to inform the population with great care as to how, when and where the programs are to take place and to explain why as the ability of the population to understand such explanations improves."

Next year, the Assembly will be meeting in New Delhi at the invitation of the Government of India. I greatly appreciate this invitation and am looking forward with pleasure to meeting again my fellow delegates for world health surrounded by a different atmosphere, in a country of ancient culture and modern attack on age-old problems.

The Price of Health

[From July 1960 WHO Chronicle]

"The task is a vast and difficult one. It is particularly challenging to the World Health Organization, because it seems clear that a public health program adapted to the individual needs of each area offers the most economical method of breaking the chains of disease and poverty and initiating an upward cycle of social evolution. To accomplish the end in view, two things are necessary. The first essential is an analysis by each country—at whatever stage of health evolution it may be—of the most vital health problems which may be attacked with maximum results at minimum cost. The second essential is the development of cooperative programs of technical assistance, in which the more fortunate areas may cooperate with those of less advanced development for the common goal of a healthful, prosperous, and peaceful world.—C.-E. A. Winslow.[6]

How much money should be spent on international collaboration in public health? Few, if any, of the questions that have regularly come before WHO's governing bodies since the foundation of the Organization have remained more stubbornly controversial.

At the Third World Health Assembly in 1950, Dr. Karl Evang of Norway, the President of the previous Assembly, spoke for a number of countries when he pointed out that:

"If half, or one-third, or even one-tenth of the present scientific knowledge of medicine had been spelt out in terms of public health administrations, hospitals, sick insurance schemes, doctors, nurses and auxiliary personnel, in a proper production and distribution of drugs and insecticides, medical literature and equipment, the picture of the whole world would have been very different indeed from that which meets the eye today * * *

"The vast majority of the peoples of the world still live in bondage to disease and misery. Science knows the means to rapid improvement, and we know how to administer the proper health measures. We are not dreamers, but practical men. Nevertheless, a majority of the member countries themselves voted a budget for WHO which is disastrously inadequate. Why has this situation arisen and why do we uphold it? I am not offering an explanation, because I know of none which would satisfy you and me."

At the same Assembly, however, dissenting voices expressed concern lest the Organization attempt to cover too much ground superficially, and pointed out that it was essential to limit its activities to work that could only be done through international machinery or particularly lent itself to international action.

That international funds should be spent sparingly, and primarily to help countries face problems for which their own resources are inadequate, has been repeatedly emphasized by representatives of all governments and is one of the fundamental principles on which international work rests. But as programs of assistance justified themselves by their results, more requests for aid of all types were submitted by governments to WHO indicating the need for yet more expenditure on international aid, and the budgets voted by the World Health Assembly increased from year to year. At the Eleventh World Health Assembly in 1958, the effective working budget proposed by the Director-General for the following year—embodying a substantial increase of some $721,000—was adopted, not after painful discussion but by acclamation, for the first time in the Organization's history.

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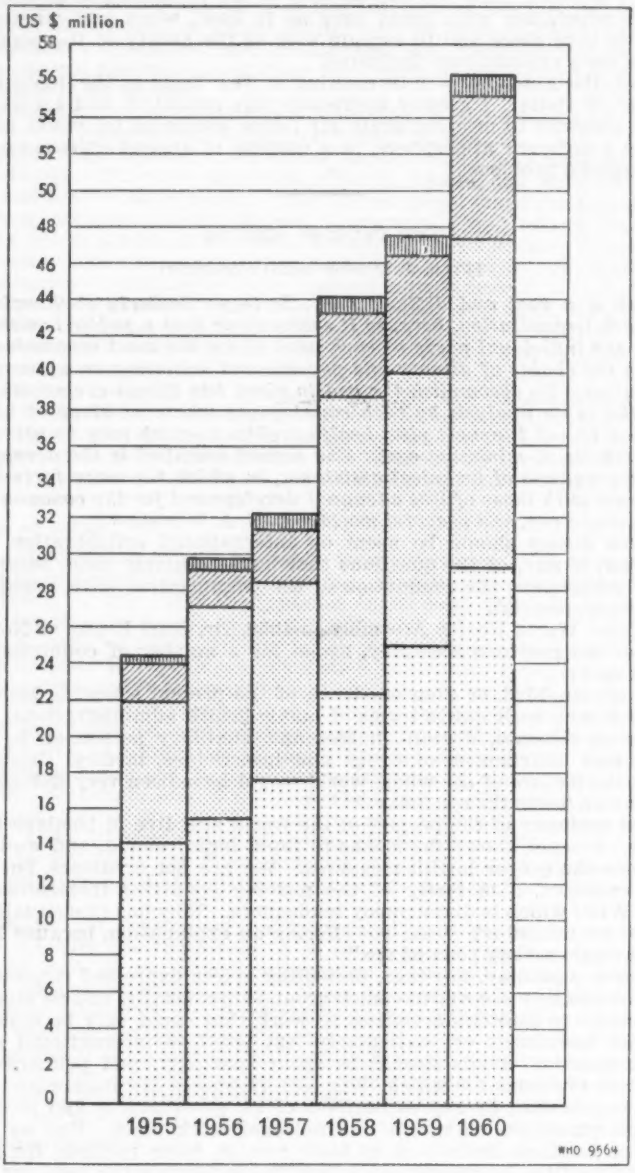
[6] The cost of sickness and the price of health (World Health Organization Monograph Series, No. 7), 1951, Geneva, pp. 9–10.

CHART 1.—TOTAL FUNDS DEVOTED OR EXPECTED TO BE DEVOTED TO INTERNATIONAL HEALTH PROGRAMS FOR THE YEARS 1955–60 FROM ALL SOURCES



Funds administered by WHO

Other Sources:

UNICEF (funds allocated or expected to be allocated for supplies and equipment)

PAHO (including Special Malaria Fund and special account for the community water supply programme)

Various

In 1960, the total amount devoted to international health programs is expected to be over $56 million. Not all of this money is contributed by WHO, although a large portion is. The accompanying chart (chart 1) shows that UNICEF and PAHO also contribute large sums. UNICEF's close cooperation with WHO in international health programs is derived from its concern with children, who must be of primary importance in nearly every health program. PAHO, the Pan American Health Organization, is one of the earliest international health organizations, and its executive office, the Pan American Sanitary Bureau (PASB), acts as the WHO regional office for the Americas. The remaining funds devoted to international health programs are provided by such agencies as the Organization of American States, the Institute of Nutrition for Central America and Panama, the Government of Argentina (for the Pan American Zoonoses Center), and the Government of Venezuela (for the Caracas zone office).

What is the money spent on? In order to ensure co-ordination and continuity, WHO prepares an integrated health program in conjunction with the other agencies interested; this program, for the years 1955–60, is set out in table 1. Some of the items listed in this table require a word or two of explanation. Malaria eradication is not part of the regular WHO budget. The Eighth World Health Assembly decided that WHO should provide technical advice, encourage research, and coordinate resources in a special program having as its ultimate objective the worldwide eradication of malaria, and a special account was set up into which contributions from governmental and private sources could be credited. Similar special accounts have been set up for the planning of research—a study of WHO's role in research, and ways in which it might assist in stimulating and coordinating it; for medical research—extension of WHO's assistance in medical research programs; and for a community water supply program—a program of self-evident value that would by itself go far to reduce the incidence of the diarrhoeal diseases in many of the less developed countries of the world.

In addition to the work carried out under its regular budget and under the various special accounts, WHO has also since 1951 looked after the health aspects of the general economic development programs of the United Nations expanded program of technical assistance for the economic development of underdeveloped countries. The funds for this program are derived from voluntary contributions paid by governments.

TABLE 1

THE INTEGRATED INTERNATIONAL HEALTH PROGRAM, 1955–60

[Amounts expressed in U.S. dollars]

	1955	1956	1957	1958	1959	1960
1. Obligations incurred or expected to be incurred by WHO:						
Regular budget	9,275,300	9,982,794	12,091,421	[1] 13,959,238	[1] 15,482,290	[1] 16,918,700
Malaria eradication special account	----------	----------	28,247	3,027,213	4,238,932	6,117,612
Special account for research planning	----------	----------	----------	54,790	245,210	----------
Special account for medical research	----------	----------	----------	----------	----------	1,256,600
Special account for community water supply program	----------	----------	----------	----------	----------	362,300
Expanded program of technical assistance	4,411,749	5,452,504	5,527,977	[2] 5,326,970	[2] 4,990,803	[2] 4,605,200
Costs reimbursed by UNICEF for projects jointly assisted by UNICEF and WHO	461,538	112,058	47,972	27,117	----------	----------
Subtotal	14,138,587	15,547,356	17,695,617	22,395,328	24,967,235	29,260,412
2. Expenditure incurred or expected to be incurred by other agencies:						
Amounts allocated or expected to be allocated by the UNICEF Executive Board for supplies and equipment in projects jointly assisted by UNICEF and WHO	7,770,029	11,361,060	10,328,622	16,207,503	14,979,650	18,125,650
Pan American Health Organization [3]	2,082,230	2,199,966	3,287,678	4,639,286	6,414,070	7,840,879
Other sources	456,034	698,428	690,369	866,056	1,083,492	1,144,478
Total	24,446,880	29,796,800	32,002,306	44,108,178	47,434,447	56,371,419

[1] Including the lump-sum allocation to WHO from the special account of the expanded program of technical assistance toward the administrative and operational services costs of that program now merged with the regular budget.
[2] Including only costs of field projects.
[3] Including operations planned under special malaria fund and the special account of PAHO for the community water supply program in the Americas.

TABLE 2

DISTRIBUTION OF ORDINARY BUDGET, 1960 AND 1961

Purpose of expenditure	Percentage of total			Purpose of expenditure	Percentage of total		
	1960	1961 [1]			1960	1961 [1]	
		(a)	(b)			(a)	(b)
Pt. I. Organizational meetings	*Percent* 2.82	*Percent* 2.66	*Percent* 2.73	Pt. III. Administrative Services:			
Pt. II. Operating program:				Administrative services	*Percent* 7.54	*Percent* 7.06	*Percent* 7.25
Program activities	56.99	56.23	57.79	Other statutory staff costs	1.99	2.04	2.10
Regional offices	10.74	10.04	10.32				
Expert committees	1.29	1.12	1.15	Total, administrative services	9.53	9.10	9.35
Other statutory staff costs	18.63	18.16	18.66				
				Pt. IV. Other Purposes:			
Total, operating program	87.65	85.55	87.92	Headquarters building fund	----------	2.69	----------
				Grand total	100.00	100.00	100.00

[1] (a) Inclusive of Pt. IV. Other Purposes. (b) Exclusive of Pt. IV. Other Purposes.

WHO's regular budget covers the cost of operating programs outside those financed from the special accounts; the cost of organizing meetings of the World

Health Assembly, the executive board, the expert committees, study groups, regional conferences, seminars, and the like; and the cost of the administrative services. The relative percentage of each of these items for 1960 and 1961 is shown in table 2.

The operating programs take the greatest share of the regular WHO budget. They include services of general international interest (e.g., the collection and analysis of world epidemiological information, the development of international standards relating to various aspects of health, the drawing up of international sanitary regulations), and direct services to governments.

Services to governments aim at strengthening national services by the encouragement of long-term health planning, research, evaluation of the health work being done, and professional and technical education of national health personnel. Assistance is not offered to governments; they must themselves ask for it. Nor is it given unconditionally. In any project in which WHO provides assistance, the government concerned must maintain administrative control, furnish counterpart and other personnel, and make provision for the continuation of the project on the termination of WHO assistance. The assistance takes various forms—consultants, demonstrations, training courses, seminars, fellowships, visiting groups of scientists, grants to training institutions and research centers to stimulate productive research, supply (on a small scale) of specialized equipment for laboratories, and occasionally provision of specialized technical literature.

It should not be forgotten, however, that the cost of internationally assisted health programs cannot be reckoned in terms of international funds alone. There is the even larger contribution made by the assisted countries themselves. Thus, in 1958 the total cost to the Organization of WHO-assisted projects in 115 countries and territories was $13,141,000; the counterpart national contributions to these projects, as reported by recipient governments, exceeded $75,000,000. In many cases the national contributions would not have been available but for the stimulus of international assistance. In this connection, Dr. H. B. Turbott, President of the Thirteenth World Health Assembly, stated in his presidential address:

"As national health men, we all experience the frustrations inherent in national control of finance, where competing interests delay that progress in national health which we see so clearly could be achieved so quickly if only we had the means. Enter the World Health Organization, with its supplemental offer of the merest modicum of finance, but of real substantial help in the planning, training, and action aspects of programs for health betterment. From this stimulation—for that is all it is—stems our success. The country being helped responds, participates in greater degree than previously thought possible by its Government, is caught up in teamwork with other countries to safeguard its newly envisaged achievement. * * *"

The variety of tasks entrusted to WHO is carried out by a staff (which must necessarily increase as the work increases), scattered over the four corners of the globe—at headquarters in Geneva, in the six regional offices, or in the field. Chart 2[1] shows the composition of this staff and the increase that has taken place in the past 5 years. It must be remembered that included is staff engaged on malaria eradication and other special projects, as well as work for the expanded program of technical assistance.

This year, the Thirteenth World Health Assembly adopted an effective working budget of over $18,975,000 for 1961. Most of this sum is made up of contributions from the members and associate members of the Organization. The overwhelming majority of these countries each contribute less than 1 percent of the whole, though a few countries contribute a higher share: United States of America, 31.71 percent; U.S.S.R., 12.48 percent; United Kingdom, 7.13 percent; France, 5.86 percent; Federal Republic of Germany, 4.88 percent; China (Taiwan), 4.59 percent; Canada, 2.85 percent; India, 2.25 percent; Italy, 2.06 percent; Japan, 2.01 percent; Australia, 1.64 percent; Sweden, 1.27 percent; Poland, 1.25 percent; Belgium, 1.19 percent; Argentina, 1.02 percent.

In addition, other funds administered by the Organization during 1961 are expected to amount to approximately $14,643,000. These sums will enable the Organization to continue its technical support to some 500 projects of all kinds in various parts of the world and to undertake a limited number of others in reply to requests from governments.

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[1] Not reproduced herein since similar information has already been published by the subcommittee.

4. ROLE OF UNITED NATIONS EDUCATIONAL, SCIENTIFIC, AND CULTURAL ORGANIZATION IN THE LIFE SCIENCES

Senator HUMPHREY. The United Nations Educational, Scientific, and Cultural Organization (UNESCO) has made many important contributions in the life sciences since it was established in 1946. As part of its overall role in science areas, it encourages the teaching and understanding of science and collaborates with other international organizations to advance mutual knowledge and understanding through all means of mass communication.

A. UNESCO-DIRECTED STUDY ON TRENDS IN SCIENTIFIC RESEARCH

One of the activities in which UNESCO has played a predominant role is in connection with implementing of a resolution adopted by the General Assembly of the United Nations on the coordination of international scientific research.

This Resolution 1260(XIII) was adopted on November 14, 1958, a few months after this subcommittee began its study.

TEXT OF U.N. RESOLUTION

The text of the resolution follows:

RESOLUTION ADOPTED BY THE GENERAL ASSEMBLY OF THE UNITED NATIONS

(on the report of the Third Committee (A/3954))

1260 (XIII). "*Coordination of results of scientific research*

The General Assembly,

Noting **the remarkable advances made in recent years in the natural sciences, pure and applied,**

Believing **that the United Nations and the specialized agencies should stimulate and encourage further the general direction of scientific research towards the peaceful ends of economic progress and human welfare, and in the interest of peace and international cooperation,**

Recalling **its resolution 1164 (XII) of 26 November 1957 on the development of international cooperation in the fields of science, culture, and education, and Economic and Social Council resolution 695 (XXVI) of 31 July 1958 on the survey which is to be prepared on international relations and exchanges in the fields of education, science, and culture,**

Recognizing **the responsibility of the United Nations for coordinating the activities of its organs and those of the specialized agencies in accordance with Articles 58 and 63 of the Charter of the United Nations, and noting that the Economic and Social Council has requested the United Nations and five of the specialized agencies to undertake appraisals of their activities and programmes for the period 1959 to 1964,**

1. *Requests* **the Secretary-General, in cooperation with the United Nations Educational, Scientific, and Cultural Organization and the other specialized agencies concerned with the peaceful application of science, as well as the International Atomic Energy Agency, to arrange for a survey to be made on the main trends of inquiry in the field of the natural sciences and the dissemination and application for peaceful ends of such scientific knowledge, and on the steps which might be taken by the United Nations, the specialized agencies and the International Atomic Energy Agency towards encouraging the concentration of such efforts upon the most urgent problems, having regard to the needs of the various countries; and requests the Secretary-General, in arranging for such a survey, to take into account the report of the United Nations Educational, Scientific, and Cultural Organization to be prepared in response to Economic and Social Council resolution 695 (XXVI);**

2. *Invites* the above-mentioned organizations to cooperate with the Secretary-General in this connexion;

3. *Further requests* the Secretary-General to submit this survey to the Economic and Social Council at its thirtieth session for comment and any appropriate recommendations;

4. *Requests* the Economic and Social Council to transmit this survey to the General Assembly, together with its comments and recommendations."

780th plenary meeting
14 November 1958

IMPLEMENTING OF RESOLUTION

Senator HUMPHREY: It may be helpful to note the international steps by which the United Nations resolution was implemented.

The Administrative Committee on Coordination (ACC), at its twenty-seventh session (20–21 October 1958), studied the means of implementing that resolution, particularly the distribution of responsibilities between the various competent organizations. It was agreed that UNESCO would act as centralizing body for the survey and that the other organizations would send it contributions relating to their respective fields of competence. The Committee also expressed the opinion that the United Nations and UNESCO, after consulting other interested organizations, should jointly appoint someone to direct the survey called for in the resolution and prepare the final report.

The General Conference of UNESCO was informed of the General Assembly resolution and the opinion expressed by the Administrative Committee on Coordination; at its tenth session, the General Conference authorized the Director-General to take the necessary steps to enable UNESCO to discharge its responsibilities in the matter.

In accordance with the opinion expressed by the Administrative Committee on Coordination, the Secretary-General of the United Nations and the Director-General of UNESCO, in agreement with the specialized agencies concerned and the International Atomic Energy Agency, appointed as Special Consultant Professor Pierre Auger (France), former Director of the Department of Natural Sciences of UNESCO.

The Secretary-General of the United Nations and the Director-General of UNESCO jointly convened a Special Advisory Committee composed of representatives appointed by the United Nations, the ILO, FAO, UNESCO, WHO, ICAO, WMO, and the International Atomic Energy Agency.

This Committee, whose function was to advise the Special Consultant on the preparation of the survey and report, held three meetings at UNESCO House, Paris, on 2 March and 13 April 1959 and 13 March 1960, with Mr. René Maheu, Assistant Director-General of UNESCO, as Chairman.

The results of the study have been favorably reviewed by the United Nations Economic and Social Council.

The study, as noted in the text of the authorizing resolution, covers many more disciplines than those of biomedical science. It follows procedures and is based on premises which are parallel to those of our far more limited Senate survey. The mutual procedure has been to enlist the expert judgment of the world's scientific community.

The premises have been very similar to those which I, for one, regard as sound for any such study, namely:

1. This is an age of science.

2. In this age, it is more and more difficult to attempt to adhere to artificial boundaries between sciences, even if that were possible.

3. The dissemination of scientific information is itself a crucial part of the scientific effort itself. Results are of little use unless they can be made available for those for whom they are ultimately intended, including both scientists and laymen.

Communication between scientists is, therefore, of wide significance, both between the basic researcher and the applied researcher and between various disciplines.

VARIETY OF SCIENCES COVERED

I personally regard the United Nations study as one of the most significant which it has ever undertaken.

I feel that its findings (to be published within a comprehensive report to be made available by the Secretary-General) will be highly relevant to our own subcommittee review. For that matter, I believe this U.N. study may be of material assistance to the United States and all other nations in strengthening both their respective research efforts and that of the international community in all the sciences. I refer to fundamental sciences (i.e., mathematics), as well as physical (physics), chemical (chemistry), biological (biochemistry and biophysics), earth and space (earth, oceans, outer space), medical (our own purview), food and agriculture, and industrial sciences.

In Paris, our project director, Mr. Julius N. Cahn, had conferred with the expert who was later to become author of the report, Prof. Pierre V. Auger, and had received much helpful insight into UNESCO'S approach to interdisciplinary problems.

B. WHO-UNESCO Relationships

By agreement, the World Health Organization (WHO) divides responsibility with UNESCO in certain fields where the programs of the two organizations might tend to overlap.[1] Thus, the UNESCO program of fundamental education, now a part of community development plans throughout the world, includes a study of various subjects of direct interest to WHO. This includes school health programs, health training for teachers, the teaching of the social sciences, and several other programs.

Other subjects in which collaboration has been instituted by WHO with UNESCO include the medical aspects of research conducted at high altitude research stations, the development of arid lands and control and utilization of water, the use of radioisotopes, etc.

C. Council for International Organizations of Medical Sciences

The role of the Council for International Organizations of Medical Sciences (CIOMS), jointly sponsored by WHO and UNESCO, is covered in part 1. CIOMS was considered in the course of our European trip and has been the subject of a considerable amount of correspondence which has followed.

D. Basic Research

Turning to the area of basic research, there are many fields in which UNESCO activities can profitably be cited.

As is stated elsewhere within this volume, scientists in the fields of biology, physics, chemistry, and other sciences have an important role in medical science. Therefore, UNESCO can, in my personal judgment, be invaluable in helping to strengthen international teamwork in these various fields by communicating their results to medicine and by maintaining records and reports received from persons in the medical field.

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[1] See also committee print, May 11, 1959, "The United States and the World Health Organization."

E. Examples of UNESCO Contributions

Within the broad framework of its authority, UNESCO has been active in the following ways, among others, in the natural sciences:

(*a*) developing international scientific cooperation through International Council of Scientific Unions (ICSU), CIOMS, and similar organizations;

(*b*) helping to improve scientific documentation;

(*c*) contributing to scientific cooperation as, for example, in:

(1) humid tropical zone research,
(2) marine sciences,
(3) peaceful uses of atomic energy,
(4) cell biology,
(5) laboratory animals,
(6) new sources of energy;

(*d*) disseminating scientific information and strengthening science teaching;

(*e*) developing and coordinating scientific research on a regional basis.

It has also made important contributions in the social sciences.

One way by which we may note UNESCO's diverse scientific activity is by citing the varied documentation which has resulted from its work. Under a few major headings, therefore, we are listing some of the most pertinent UNESCO publications which have come to the subcommittee's attention.

1. CELL BIOLOGY AND RADIOBIOLOGY

The documents listed below represent the historical development of the cell biology and radiobiology program of UNESCO. Unfortunately, not all the projects suggested during these early meetings could be developed and realized.

During the last 2 years, owing to limited budgetary possibilities, UNESCO has restricted its activity mainly to two fields: the organization of interdisciplinary symposia and the organization of training courses on modern techniques used in different disciplines of biological research. Great attention is paid to promote closer international cooperation in this field.

The more recent documents, UNESCO/NS/Biocel/19–22–25–27, reflect the present efforts and achievements of UNESCO in its cell biology and radiobiology program and its future program.

The circular letter CL/1361 concerns a recent effort of UNESCO in promoting research in radiobiology by organizing regional study groups on ionizing radiations and their biological effects, starting with East European countries, including the Union of Soviet Socialist Republics, and Asian countries.

CL/1361: Letter of V. Veronese, director general, concerning "Basic research in Nuclear Physics."

UNESCO/NS/BIOCEL/2: Report of meeting of consultants, UNESCO House, April 4, 1956.

UNESCO/NS/BIOCEL/3: Working paper intended for roundtable discussions on the possibility of establishing an International Commission for Cell Biology.

UNESCO/NS/CNR/8: Historic of the project "Cell Growth."

UNESCO/NS/BIOCEL/4: Roundtable discussion held at Brown University concerning the proposed International Commission for Cell Biology, Providence, R.I., on July 22, 1956.

UNESCO/NS/BIOCEL/5: General information document on cell biology program, 1956.

UNESCO/NS/BIOCEL/19: Report of meeting of consultants to advise on future symposia and training courses under the cell biology program, UNESCO House, Paris, February 19, 1958.

UNESCO/NS/BIOCEL/22: Report of meeting of consultants for the cell biology program, UNESCO House, Paris, October 10, 1958.

UNESCO/NS/BIOCEL/25: Report of Dr. Anna Dux's mission to the United States, March 19–April 9, 1959.
Press release No. 1355, Paris, December 20, 1955: Plan of action to encourage internationally or regionally research on normal and abnormal cell growth.
Press release No. 1350, Paris, December 8, 1955:
Preparation of the cell growth research program.
Extract from resolutions passed by the Seventh General Assembly of ICSU, Oslo, August 9–12, 1955.
UNESCO/NS/BIOCEL/14: List of experts and consultants to UNESCO for the cell biology program and the meetings they attended, 1957.

2. DISSEMINATION OF SCIENTIFIC INFORMATION

Popularization of Biology

A. Publications:
"Nuclear Energy and Its Uses in Peace," by G. Wendt.
Publication No. XIV of the series "UNESCO and its Programme," 1955; 76 pages.
See especially chapter VII (Tracers in Biological Research, in Agriculture, Photosynthesis).
"Radioisotopes in the Service of Man," by F. Lot.
Publication No. XVI of the series "UNESCO and its Programme," 1958; 82 pages.
See especially chapter V (Isotopes Work With Biologists and Agronomers), chapter VI (The Therapeutical Use of Radioactive Isotopes), chapter IX (Radioactive Isotopes and Living Beings).
B. Traveling science exhibitions:
On the history of the UNESCO traveling science exhibitions, see "How to Bring Scientific Progress Before the Public: the Traveling Scientific Exhibitions," article by A. Gille in "Way Forum," No. 28, June 1958, pages 33–35.
Exhibitions having dealt with biology:
"Our Senses and the Knowledge of the World," traveled round the Far East from 1951 to 1955, visiting eight countries and being seen by 650,000 persons in 21 cities.
"Energy and Its Transformation," traveled round the Far East from 1956 to 1959, visiting 9 countries and being seen by more than 600,000 persons in 15 cities.

3. TEACHING OF BIOLOGY

Inventories of apparatus and materials for teaching science.
(A series prepared by UNESCO for use as reference manuals in selecting essential equipments for teaching science. Designed especially to help carry out plans for the improvement of the teaching of science in underdeveloped areas.)
Volume I—Primary, Secondary and Vocational Schools.
(The teaching of biology is dealt with in part 1, in part 2 (pp. 54–56).)
Volume II—Universities (out of print).
(Botany, pp. 10–23; zoology, pp. 115–135.)
Volume III—Technical Colleges:
Part 1. Veterinary Sciences.
Part 3. Agricultural Sciences.
Part 5. Medical Sciences (in collaboration with WHO).

4. LABORATORY ANIMALS

The activities of UNESCO in this field started by setting up in 1956 an International Committee on Laboratory Animals (ICLA), under the joint auspices of the International Union of Biological Sciences (IUBS), CIOMS and UNESCO.
The aims and activities of UNESCO and this Committee are reflected in the following documents:

ICLA bulletins: Nos. 1, 2, 3, 4.
CL/1305: Import, export, and transportation of laboratory animals.
Volume 1, August 1958: International survey on supply, quality, and use of laboratory animals.

Volume 2, May 1959: International survey on supply, quality, and use of laboratory animals.
UNESCO/NS/BIOCEL 1: Suggestions concerning breeding center for laboratory animals.
UNESCO/NS/BIOCEL/6: Meeting of consultants on international cooperation in the field of laboratory animals (UNESCO House, Paris, December 3 and 4, 1956).
UNESCO/NS/BIOCEL/7: Recommendations made during the meeting for the international cooperation in the field of laboratory animals.
UNESCO/NS/BIOCEL/8: Meeting of international cooperation in the field of laboratory animals (UNESCO House, Paris, December 3 and 4, 1956).
UNESCO/NS/BIOCEL/9 Rev.: Survey on the production and utilization of laboratory animals contractors.
UNESCO/NS/BIOCEL/10 Rev.: Survey on the production of laboratory animals.
UNESCO/NS/BIOCEL/11 Rev.: Tentative program of the International Committee on Laboratory Animals.
UNESCO/NS/BIOCEL/12: Aims of the International Committee on Laboratory Animals.
UNESCO/NS/BIOCEL/13: Report of meeting of consultants on international cooperation in the field of laboratory animals (UNESCO House, Paris, December 3 and 4, 1956).
UNESCO/NS/BIOCEL/17: Report of meeting of experts of the International Committee on Laboratory Animals (UNESCO House, May 27–29, 1957).
UNESCO/NS/151: Report of second meeting of the International Committee on Laboratory Animals (UNESCO House, December 12 and 13, 1957).
UNESCO/NS/BIOCEL/20: Report of third meeting of the International Committee on Laboratory Animals held in connection with the symposium, October 8 and 9, 1958.
UNESCO/NS/BIOCEL/23: Draft bylaws of International Committee on Laboratory Animals.
UNESCO/NS/BIOCEL/24: Report of an unofficial meeting held at UNESCO House on February 5 and 6, 1959.
UNESCO/NS/BIOCEL/25: Report of Dr. Anna Dux's mission to the United States, March 19 to April 9, 1959.
UNESCO/NS/BIOCEL/26: Final report of the fourth meeting of the International Committee on Laboratory Animals, London, April 11 and 13, 1959.
UNESCO/NS/BIOCEL/27: Meeting of consultants for the cell biology program and program on basic research in nuclear physics of UNESCO, Louvain, Belgium, May 10, 1959.

5. REGIONAL OFFICE ACTIVITY IN FURTHERING SCIENTIFIC COOPERATION

The following activities were carried out by the science cooperation offices in the field of life sciences, 1954–59:

A. Marine sciences

1954 The Science Cooperation Office for Latin America (Montevideo) organized a meeting of 14 experts on marine biology from Argentina, Brazil, Chile, Cuba, Mexico, Peru, Uruguay, and Venezuela. The meeting took place in Concepcion, Chile (September 15–17) to study proposals for the establishment of an international network of laboratories of marine biology. The FAO office in Santiago collaborated in organizing the meeting which requested the UNESCO Office to prepare the draft convention for the proposed network and recommended the immediate establishment under the auspices of the office of a Latin American committee to coordinate and facilitate research in marine biology, pending the setting up of a permanent organization.

The Science Cooperation Office for Southeast Asia organized a symposium on marine and fresh water plankton, in the Indo-Pacific region. The meeting was held in Bangkok (January 25 and 26). It was organized jointly by the office and the Indo-Pacific Fisheries Council. UNESCO gave financial assistance to five experts to attend, including Mr. Charles J. Fish (United States of America), and Prof. A. Thieneman (Federal Republic of Germany). Eighteen papers were read and proceedings were printed jointly by FAO and UNESCO.

1955 The Science Cooperation Office for Latin America at Montevideo organized a meeting of representatives of laboratories of marine biology which was held at Sao Paulo on October 17 and 18. A symposium on plankton was also held at Sao Paulo from November 3 to 5, 1955.

A training course on methodology of marine biological research was organized by the Latin American office at Sao Paulo, Sao Sebastiao, Cananeia, and Ubatuba (Brazil) during the month of October. Fifteen biologists took part from Argentina, Brazil, Chile, Cuba, Ecuador, Peru, Uruguay.

1956 The Science Cooperation Office for Latin America organized a meeting of the Latin American working group on marine sciences, which was held in Vina del Mar (Chile) from October 15 to 17, 1956. Participants from Argentina, Brazil, Cuba, Chile, Denmark, Mexico, Peru and the United States attended the meeting. The participants from the United States were R. S. Galler, W. S. Wooster, W. B. Schaeffer, K. M. Wilbur, Walton-Smith, Revelle, and O. E. Reynols.

1957 The Science Cooperation Office for Southeast Asia organized a training course in marine taxonomy and planktonology, in Nhatrang (Vietnam), from February 11 to March 10, 1957. Twenty-three participants from China, Indonesia, Malaya, Philippines, Singapore, Thailand, and Vietnam attended.

The Science Cooperation Office for Latin America organized a working group on marine biological productivity, in Montevideo (Uruguay), from May 22 to 24, 1957. Participants from Argentina, Brazil, Chile, Peru and Uruguay attended.

1958 The Science Cooperation Office for South Asia organized a refresher course in marine biology in Bombay (India), from October 6 to November 15, 1958. Twenty-seven participants from Burma, India, Nepal, Pakistan and Thailand attended.

1959 The Science Cooperation Office for Southeast Asia organized a regional meeting of specialists in marine sciences, at Saigon, from January 14 to 17, 1959. Participants from China, Indonesia, Japan, Korea, Malaya, Philippines, Singapore, Thailand, Vietnam, and observers from FAO and Pacific Science Association attended.

The Science Cooperation Office for Latin America organized a training course on marine sciences, in Concepcion (Chile), from January 5 to 31, 1959. Participants from Argentina, Chile, and Uruguay attended.

The Latin American office organized also a course on marine sciences, in Mexico, from January 2 to February 2, 1959. Participants from Colombia, El Salvador, Guatemala, Haiti, Panama, and Venezuela attended.

The Science Cooperation Office for Southeast Asia organized with funds provided by the regional technical assistance program a regional training course in marine sciences, in Nhatrang (Vietnam). This course started from August 15, with participants from China, Hong Kong, Indonesia, Japan, Korea, Thailand and Vietnam. Dr. R. Revelle, director of the Scripps Institution of Oceanography, La Jolla, Calif., has collaborated in the elaboration of the plans for the course. Two other members of the Scripps Institution, W. S. Wooster and D. L. Inman are instructors.

B. Biophysics

1954 The Science Cooperation Office for Latin America organized a training course on the techniques of isotopes, held in the University of Havana from December 1 to 23, 1954, under the direction of Prof. H. B. Bruner of the U.S. Atomic Energy Commission. Participants from Cuba, the Dominican Republic, Costa Rica, Haiti, Honduras, Guatemala, Mexico, and Panama attended.

1955 The Science Cooperation Office for Latin America organized a training course on utilization of radioisotopes, held at Montevideo (Uruguay) from August 15 to September 2, 1955.

The Science Cooperation Office for Latin America organized a course on electron microscopy, held at Rio de Janeiro (Brazil) from July 11 to 30, 1955. Under the direction of Prof. Keith Porter of the Rockefeller Institute of Medical Research, New York, 18 scientists from Argentina, Brazil, Chile, and Uruguay took part.

1956 The Science Cooperation Office for Latin America organized an international course on the methodology of utilization of radioisotopes, held at Rio de Janeiro (Brazil) in July 1956. This course was organized in collaboration with the Institute of Biophysics of Rio de Janeiro, and under the direction of Dr. A. D. Cooper of the Atomic Energy Commission of the United States.

1957 The Science Cooperation Office for Latin America organized a course on physical methodology in biological research, held at the Institute of Biophysics of the Rio University from June 24 to August 2, 1957. Twenty participants from Bolivia, Brazil, Chile, and Peru attended.

1958 The Science Cooperation Office for the Middle East organized a regional training course on physical principles and utilization of radioisotopes. This course, held at the American University of Beirut (Lebanon) from March 17 to April 13, 1958, was attended by participants from Lebanon, Sudan, Syria, and Tunisia. The U.S. Atomic Energy Commission assigned Dr. Akers and Dr. Ezell, both from Oak Ridge, as the main lecturers for the course.

The Science Cooperation Office for Southeast Asia organized a training course in the application of radioisotopes, held at Tokyo from August 23 to September 19, 1958. The course formed part of UNESCO's regional technical assistance program. Twenty-six foreign participants from Burma, Ceylon, India, Indonesia, Iran, Korea, Malaya, Pakistan, Philippines, China, Thailand, Vietnam, and six Japanese scientists attended it. Dr. Martin J. Bukovac (U.S.A.) was invited by UNESCO as lecturer.

C. Human biology

1955 The Science Cooperation Office for Latin America organized a symposium on thalamus, held at Montevideo (Uruguay) from March 21 to 24, 1955, in connection with the Sixth Latin American Congress of Neurosurgery.

1956 The office for Latin America organized a course on modern physiology for university professors. This course, held at Panama University from February 10 to March 17, 1956, was attended by participants from Colombia, Cuba, Ecuador, El Salvador and Nicaragua.

1957 The office for Latin America collaborated in the organization of the symposium on the submicroscopic organization and function of the nerve cells, held at Caracas (Venezuela) from March 15 to 22, 1957.

The Science Coooperation Office for the Middle East organized in collaboration with CIOMS a symposium on abnormal haemoglobins, held at Istanbul (Turkey) from September 15 to 20, with participants from Belgium, Ceylon, France, Greece, India, Indonesia, Iran, Italy, Netherlands, United Kingdom, United States, and Thailand. In connection with this symposium a brief demonstration course on abnormal haemoglobins was held at Istanbul from September 5 to 20, 1957, with participants from Egypt, India, Iraq, Jordan, Lebanon, and Sudan.

1959 The Science Cooperation Office for Latin America organized in collaboration with the Institute of Biophysics of Brazil University a symposium on electrogenesis, held at Rio de Janeiro and directed by Professor Chagas.

The office for Latin America also organized in collaboration with CIOMS a symposium on brain mechanism and learning, which was held at Montevideo from August 3 to 7, 1959.

D. Humid tropics and botany

1956 The Science Cooperation Office for Southeast Asia organized a symposium on tropical vegetation, held in Kandy (Ceylon) from March 19 to 21, 1956.

The Science Cooperation Office for Latin America organized a symposium on pharmaceutical botany, held at La Havana (Cuba) from December 16 to 22, 1956. Some scientists from the United States attended.

1957 The Science Cooperation Office for South Asia organized a symposium on genetics and plant breeding in Southeast Asia, held in New Delhi from January 21 to 25, 1957. Participants from Australia, Ceylon, Burma, India, Sweden, and the United States (Dr. Stebbings) attended.

The Science Cooperation Office for Latin America organized a proceeding on type culture collections, held Montevideo (Uruguay) from May 2 to 4, 1957. Participants from Argentina, Brazil, Mexico, Uruguay, and Venezuela attended.

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The Science Cooperation Office for Southeast Asia organized a symposium on phytochemistry of tropical plants, held at Kuala Lumpur (Malaya) from December 4 to 8, 1957, with participants from Australia, Hong Kong, India, Indonesia, Japan, Malaya, New Zealand, Philippines, Singapore, Vietnam, and the United States (Dr. A. Sidney Harris).

1958 The Science Cooperation Office for Latin America organized a symposium on humid tropical research problems, held at Quibdo (Colombia) from March 23 to 29, 1958. Participants from Brazil, Colombia, Costa Rica, Mexico, and the United States (Cuatrecases, Fosberg, Harvey, Laughin, and West) attended.

The Science Cooperation Office for South Asia organized a symposium on origin, cytogenetics, and breeding of tropical fruits, held at New Delhi (India) from December 1 to 6, 1958. Participants from India, United Kingdom, Japan, and the United States (Cummings, Grant, Rachie, Randolph, and Sprague, all from the Rockefeller Foundation) attended.

The Science Cooperation Office for Southeast Asia organized a symposium on tropical vegetation, held at Bogor (Indonesia) from December 12 to 15, 1958. Participants from Australia, Indonesia, Sarawak, Brunei, Singapore, Malaya, Cambodia, Thailand, Pakistan, India, Ceylon, United Kingdom, the United States (Dr. F. R. Fosberg), and representatives of FAO attended.

E. Arid zone

1958 The Science Cooperation Office for the Middle East organized a regional training course on plant ecology, held at Cairo (UAR) from February 8 to March 2, 1958, with participants from Egypt, Iraq, Iran, Sudan, Syria, and Turkey.

The Science Cooperation Office for South Asia organized a course on plant ecology, held at Jaipur (India) from December 3 to 31, 1958.

1959 The Science Cooperation Office for the Middle East organized a symposium on resistance of insects to insecticides with special reference to arid regions. This symposium held in Cairo from May 10 to 15, 1959, was attended by scientists from Canada, Ethiopia, Lebanon, Sudan, Turkey, United Kingdom, Union of Arab Republics, and the United States (H. Hoogstraal, Lt. J. G. McWilliams).

6. INTERCOMPARISON OF THE X- AND GAMMA-RAY STANDARDS OF THE VARIOUS NATIONAL LABORATORIES

In 1956, UNESCO agreed with the WHO and the U.S. National Bureau of Standards to cooperate in a program intended to make secondary X-ray standards available to member states, in line with the recommendations of the WHO Study Group on Radiobiological Unit and Radiobiological Protection. It was agreed that the part each organization should play would be as follows: UNESCO would initiate work at the U.S. National Bureau of Standards for the construction of the necessary instruments and WHO would provide experts to travel with these instruments to countries requiring them.

At the beginning of 1957, the U.S. National Bureau of Standards signed a contract with UNESCO for the construction of the ionization chamber. The construction was finished at the end of 1957. This secondary standard chamber is used primarily for purposes of checking between laboratories which have primary standards of the free-air type.

Intercomparisons were conducted in New Zealand, Germany, and France during the course of 1959. Arrangements were made for the intercomparison with Canada and a new request came from Poland recently.

7. BASIC BRAIN RESEARCH

There are no documents, as there has been no activity,* concerning brain research. Brain research was recommended as a priority field to UNESCO by the experts of the Economic and Social Council of the United Nations in 1950. However, owing to the limited budgetary possibilities, UNESCO had to concentrate on problems which seemed to be more urgent.

In its 10th session (1958), the General Conference of UNESCO included interdisciplinary brain research into the program of the Natural Sciences Department, but without financial provisions for 1959–60.

*This statement, valid as of early 1959, was superseded by subsequent formation of the International Brain Research Organization. (See p. 621.)

Consequently, the Secretariat requested CIOMS to help in establishing a program in this field.

In connection with the 21st International Congress of Physiological Sciences, which was held in Buenos Aires, August 9–15, 1959, a few experts discussed questions relative to the establishment of an International Brain Research Organization (IBRO). A meeting of the Committee on Physiology of IBRO will take place on October 2 and 3, 1959, in UNESCO House.

According to present plans, UNESCO will spend about $5,000 in 1961–62 for the development of interdisciplinary brain research.

A. Proposed International Brain Research Organization

Senator HUMPHREY. Almost everyone recognizes the tremendous importance of basic and applied research into the functioning of the brain.

I have, therefore, noted with deep interest UNESCO's preliminary work, referred to above, in connection with a proposed Interdisciplinary Brain Research Organization, referred to as "IBRO."

The subcommittee has been in touch with leading physicians who have been at work on problems of IBRO. I refer in particular to Dr. Herbert H. Jasper, Professor of Experimental Neurology, Montreal Neurological Institute, McGill University, Montreal, Canada and Dr. Mary A. B. Brazier, neurophysiologist at the Massachusetts General Hospital, Boston.

One of the matters which we had explored is the relationship between IBRO and another organization—the World Federation of Neurology. In the latter group's short history to date, Dr. Ludo Van Bogaert, of Belgium, and Dr. Pearce Bailey, of the United States, among others, have played both leading and fruitful roles. Dr. Jasper helped clarify, as did Drs. Van Bogaert and Bailey, the respective jurisdictions of the two organizations. A report on the World Federation of Neurology may be found in part III on pp. 848.

There follows the text of the draft proposal to UNESCO for the establishment of IBRO, as received by the Senate subcommittee for our information. This draft represents quite clearly the very considerable consideration given to it by many experts including Dr. Brazier and others.

The draft is presented here in its full text because it indicates some of the characteristics which arise from the very nature of interdisciplinary basic research, namely, complexity and diversity.

Note should be taken of the large number of separate scientific organizations from whom, IBRO's sponsors anticipate, contributions might be drawn.

Draft Proposal to UNESCO for the Establishment of an Interdisciplinary Brain Research Organization

Herewith is submitted to UNESCO a proposal for the establishment of an international organization to promote interdisciplinary research contributing to an understanding of the activity of the brain.

It is well recognized that, in addition to its intrinsic interest, understanding of the function of the brain is of great significance because its impairment underlies neurological and mental disorder, a major category of disease today. Of even greater importance, the activity of the brain is concerned with controlling all behavior. The behavior of man, insight into which is the ultimate goal of all brain research, is basic to man's interpersonal, social, and national-political interrelations. Further knowledge in this field is essential in the complexities of modern civilization and in international relations in the world today.

The substance of this proposal will be presented under the headings of: I: The history of the efforts to establish an Interdisciplinary Brain Research Organization; II: A statement of its proposed goals and functions; III: A suggested pattern of its structural organization.

I. The History of Steps To Establish an Interdisciplinary Brain Research Organization. Although as long ago as 1946 UNESCO considered the establishment of an international brain institute, no action was taken and it was rather through a series of international symposia that current interest and activity developed. At one of these, devoted to Higher Nervous Activity and Electroencephalography in Moscow in 1958, the formation of an Interdisciplinary Brain Research Organization was first formally recommended. An international working committee was established by the president of the International Federation of Societies for Electroencephalography and Clinical Neurophysiology. In a meeting at UNESCO House under the auspices of CIOMS on October 2–3, 1959, this committee, enlarged by representatives of neuroanatomy and neurochemistry, considered all aspects of the subject. They outlined plans for further developments including the preparation of the present proposal.

II. Goals and Functions of the Proposed IBRO.—The three features which characterize the goals and functions of the proposed IBRO and at the same time differentiate it from existing organizations are, first, its broad interest in all facets of research on the brain with the final goal of our understanding of its role in managing behavior and especially the behavior of man. Research on man can only proceed most effectively if all brain research is most vigorously pursued.

Secondly, IBRO is distinguished by its interdisciplinary interest, most other organizations for the study of the brain being confined to specialist fields.

Thirdly, IBRO would be characterized by the international scope of its organization and particularly by its interest in fostering working relations between investigators in all parts of the world. There does not now exist an international organization devoted to the interdisciplinary study of the activity of the brain. In filling this gap, IBRO would provide centralization and association of existing disciplinary efforts at an international rather than a national level. More definite steps by which IBRO could fulfill these general goals are: the establishment of a central collection of information concerning research laboratories, programs of investigations, and special opportunities and facilities for research in all countries. Next, the forefront of advance in brain research would be brought widely to the attention of investigators by a series of international, interdisciplinary symposia. Possibly publication of a newsletter or bulletin might be undertaken. Most important of all, IBRO would facilitate the interchange of young workers between various laboratories and countries.

A fourth goal is to promote worldwide education in regard to the medical, political, and social importance of gaining a basic understanding of the brain. It is envisaged that IBRO would provide leadership at the national and international level in reminding governments, peoples, and foundations of the importance of fostering and promoting research on the brain. These are compelling reasons for desiring an affiliation of IBRO with UNESCO.

III. Proposed Structure of IBRO.—In an effort to represent adequately the different branches of brain research and at the same time provide for their interdisciplinary coordination, it is proposed that a panel for each field would be formed, from which the delegates to the central committee would be elected. The collective assembly of these delegates would form the major representation on the Central Committee of IBRO. The fields to be represented by the initial panels number seven, namely: neurophysiology, neuroanatomy, neurochemistry, neuropharmacology, neuroendocrinology, behavioral sciences, and jointly, cybernetics and biophysics.

Since the Panels of Neurophysiology and the Behavioral Sciences will have to represent a much greater number of working laboratories throughout the world than the panels of the other disciplines, neurophysiology and the behavioral sciences are asked each to elect four delegates to the Central Committee of IBRO with two alternates, if possible from different countries. The other five panels are asked each to elect two delegates with two alternates, if possible from different countries.

Further to promote the interdisciplinary interests of IBRO, the relevant component societies of CIOMS and ICSU would each be invited to send one representative to the Central Committee of IBRO. These organizations number six, namely: under CIOMS, the International Federation for Societies of Elec-

troencephalography and Clinical Neurophysiology and the World Federation for Mental Health, and under ICSU, the International Unions of the Physiological Sciences, Anatomy, Biochemistry, and Biology. These latter relationships and representatives would thus serve as channels of communication and coordination between IBRO and the component bodies of CIOMS and ICSU.

The 18 delegates from the panels of the disciplines, plus the 6 anticipated representatives from the societies under CIOMS and ICSU, would thus form the Central Committee of IBRO. In the event of a possible imbalance in the geographical distribution of membership in this committee, delegates from the panels are empowered to co-opt from their members up to 4 additional delegates to the central committee.

With respect to the composition of the panels, membership should be broad and reflect the various subdisciplines within each field as well as the intensity of current activity in them. Every effort would additionally be given to achieving a broad geographical representation among the panel members. Each panel is to have a compiler so as to provide a channel of correspondence between the membership of the panel and IBRO.

It is left for the first meeting of the Central Committee of IBRO to work out the organizational relationship with UNESCO and other international organizations.

Senator HUMPHREY. A letter from Dr. Brazier, conveying additional background information on IBRO follows:

MASSACHUSETTS GENERAL HOSPITAL,
Boston, Mass., April 29, 1959.

DEAR SENATOR HUMPHREY: Thank you for your letter asking me to suggest ways in which international cooperation can be achieved for coping with diseases of the central nervous system. You speak of your visit to the Brain Institute in Moscow and of the collaboration you feel scientists have already begun to make in this field. Perhaps you would be interested to know in some detail of the progress that scientists in the field of the neurological sciences have made on an international level.

(1) In 1947 a group of us formed an International Federation of Societies for Electroencephalography and Clinical Neurophysiology. As you know, electroencephalography is the study of the electrical activity of the brain (brain waves), a technique that has proved to be one of the most powerful means of studying brain function. Clinical neurophysiology covers all the facets of this basic science as applied to diseases of the central nervous system. The International Federation first met in London in 1947 at which time we had three member societies: England, France and the United States. Within 4 years we were joined by Switzerland, Denmark, Sweden, Holland, Germany, Spain, South America, Japan, and Italy. The second congress was in Paris in 1949, the third in Boston in 1953, and the fourth in Brussels in 1957. The fifth will be in Rome in 1961.

In 1954 the Russian electroencephalographers joined the Federation to which 20 countries now belong. The others that have joined since the first days are Australasia, Austria, Czechoslovakia, Rumania, Norway, Hungary, and India. The President of this International Federation for the current term, 1957–61 is Prof. Henri Gastaut of Marseille, France. The Secretary General is myself and hence the office of the Federation (which is incorporated in Paris) is at present here, at the Massachusetts General Hospital, Boston. The Federation is affiliated with the Council for International Organizations of Medical Sciences whose office is in Paris.

Two Russian scientists are among the 14 Vice Presidents of the Federation: Prof. S. A. Sarkisov, Director of the Brain Institute of the U.S.S.R. Academy of Medical Sciences in Moscow (whom you have met), and Prof. V. S. Rusinov of the Burdenko Institute of Neurosurgery of the Academy of Medical Sciences who is mentioned in the article from the New York Times that you had printed in the Congressional Record.

(2) In 1949 the Federation founded an international journal called Electroencephalography and Clinical Neurophysiology. This has an international board of editors and publishes scientific articles on the central nervous system (in both health and disease).

In 1958 the journal whose editor in chief is Dr. Herbert Jasper of Montreal (where the journal is published) received its first scientific contribution from the U.S.S.R. which was published as a supplement in the English language.

(3) In October of 1958 the Academy of Sciences of the U.S.S.R. arranged a small International Colloquium in Moscow, specifically to discuss the electrical activity of the brain. To this they invited a total of 23 scientists from 16 countries outside the U.S.S.R. Four were invited from this country including myself, and I enclose, for your interest, some notes that I took on this occasion.

(4) On October 11, 1958, the final day of the colloquium and as a direct outcome of it, a decision was reached to form an Interdisciplinary Brain Research Organization (IBRO) with the goal of coordinating the study of brain mechanisms in health and disease.

The term "interdisciplinary" was used, because the plan called for collaboration between international committees representing the various disciplines that could contribute to the main goal; for example, neuroanatomy, neuropharmacology, biochemistry, genetics, biophysics, etc. The principal and leading committee would clearly be the one representing neurophysiology, and this committee is now forming under the leadership of Prof. H. Gastaut of Marseille and Prof. A. Fessard of the Collège de France in Paris. It is designated the International Committee for Neurophysiological Research (ICNR). The committee is to consist of 20 members representing 12 countries (England, United States, Belgium, France, China, Germany, Poland, Canada, Rumania, Italy, U.S.S.R., Hungary). Prof. H. Gastaut of Marseille is the chairman and I am one of the representatives from this country. Prof. H. W. Magoun of the University of California at Los Angeles is another.

The goals of this organization, as outlined at the initial meeting included the following: (*a*) to establish an exchange of information of the work in progress in the different laboratories occupied with the study of brain mechanisms and to have recourse if necessary to the publication of a special bulletin; (*b*) to organize an exchange of research workers between different countries, and to place facilities at their disposal in the centers equipped to receive them; (*c*) to organize in the near future other conventions on brain mechanisms.

The original plan called for the Interdisciplinary Brain Research Organization to be set up under the sponsorship of the International Federation of Electroencephalographic Societies and of UNESCO. In November 1958 Professor Fessard and Professor Gastaut approached UNESCO and registered a supplementary brochure, No. 108h concerning IBRO in the section of Natural and Exact Sciences of that organization.

(5) Another project that I might mention to you is the series of conferences on "The Central Nervous System and Behavior" being sponsored by the Josiah Macy Jr. Foundation and the National Science Foundation.

The first of these was held in February 1958 at Princeton and included a review of the history of Russian neurophysiology, an account of Pavlovian physiology as pursued both in this country and in Russia and a section on the most modern developments in our own laboratories in this country.

The transactions of this conference have been published and I am sending you a copy under separate cover.

The second of this series of conferences took place in February 1959, again in Princeton, and to this meeting the two sponsoring foundations brought a representative from Czechoslovakia, one from Russia and one from Hungary, all of whom participated in the program. The transactions of this meeting are currently being edited for publication.

In closing may I quote from your speech in the Senate: "Exchanges represent one of the great hopes for advancing science and for improving relations between the East and West." I would heartily endorse your statement and strongly urge that such interchange be facilitated. It is my opinion that more can be achieved if these interchanges are made by individuals rather than by delegations and I believe this to be the considered opinion of the delegation of American neurologists who recently visited the U.S.S.R. under the leadership of Dr. Frank Forster.

I would also like to call your attention to the report by Dr. Fred R. Cagle, who went recently to the U.S.S.R. as representative of the American Institute of Biological Sciences. In their bulletin of January 1959 Dr. Cagle makes the same recommendation: that American scientists visiting the U.S.S.R. should not travel as delegations or teams but as individual scientists. He also recommends that the United States should implement the travel of Soviet scientists to the United States.

I hope some of the above notes may prove useful to you, and in any case I would strongly urge you to get in touch with Prof. H. W. Magoun who has taken

such a leading part in this country in furthering international cooperation in brain research, and who is the outstanding scientist in this field in the world. He is Professor of Anatomy at the University of California, Los Angeles.

Yours sincerely,

DR. MARY A. B. BRAZIER.

FORMATION OF IBRO

The November 18, 1960, issue of "Science" contained the following article on the initiation of IBRO:

[Article in Science, Nov. 18, 1960]

INTERNATIONAL BRAIN RESEARCH ORGANIZATION CREATED IN PARIS

UNESCO has announced the creation of an International Brain Research Organization, the purpose of which is to coordinate results and facilitate training and research in this branch of science. The announcement followed a 4-day meeting last month at UNESCO House in Paris.

The meeting brought together 18 scientists, from 12 countries, who are serving as members of a central committee representing the seven principal branches of brain research: neuroanatomy, neuroendocrinology, neurochemistry, neuropharmacology, neurophysiology, the behavioral sciences, and biophysics. The meeting was convened on behalf of UNESCO by the Council for International Organizations of the Medical Sciences. Committee members came from Argentina, Australia, Canada, France, the Federal Republic of Germany, Italy, Norway, Poland, Sweden, the United Kingdom, the U.S.S.R., and the United States.

At the meeting the statutes of the new international nongovernmental organization were adopted and an executive committee was elected. H. H. Jasper of Montreal, a noted neurophysiologist, was chosen executive secretary of the committee. Other committee members elected are: P. K. Anokhin of the U.S.S.R., A. Fessard of France, G. W. Harris of the United Kingdom, H. W. Magoun of the United States, Giuseppe Moruzzi of Italy, and Heinrich Waelsch of the United States. D. Bovet of Italy, A. Brodal of Norway, and W. A. Rosenblith of the United States were chosen as alternate members.

B. Significance of Brain Research to Disabilities of American Veterans

Senator HUMPHREY. The subcommittee does not presume to make an evaluation of the proposed substantive plans of IBRO. However, in order that we might have the clearest possible understanding of one of the vital facets of brain and neurological research, either basic (as in the case of IBRO) or applied, let us refer to the one particular implication of this subject. Involved are a group of men who mean a great deal to us—disabled, brain-injured veterans of the United States.

There follows a letter from the Biometrics Service, Department of Medicine and Surgery, Veterans' Administration, to our project director, Mr. Julius N. Cahn, indicating the considerable number of men for whom brain research may indeed mean a great deal, in providing new hope.

VETERANS' ADMINISTRATION,
DEPARTMENT OF MEDICINE AND SURGERY,
Washington, D.C., July 21, 1960.

DEAR MR. CAHN: I am enclosing two tables which summarize the data available on the number of veterans receiving Veterans' Administration compensation for a service-connected disability, pension for a non-service-connected disability, and the number of veteran patients receiving care as of October 31, 1959, for a condition which was probably associated with a brain injury.

I have included in each of the tables veterans having epilepsy on the assumption that part of this total group developed their epilepsy in connection with a brain injury or head injury. This group is particularly large in number for those veterans receiving compensation and pension and you may wish to exclude

it from the grand total because of the uncertainty connected with the cause of the disease.

I trust that this information will be of value to the subcommittee.

Sincerely yours,

MORTON ROBINS,
Director, Biometrics Service,
Office of Controller, DM&S.

VETERANS IN RECEIPT OF VA COMPENSATION OR PENSION FOR A DISABILITY PROBABLY ATTRIBUTABLE TO BRAIN INJURY ON ROLLS AS OF SEPT. 20, 1959

Diagnostic category	Number of veterans receiving—		
	Total	VA compensation	VA pension
Total	50,348	40,974	9,374
Traumatic encephalopathy	26,955	23,455	3,500
Epilepsy	17,045	12,247	4,798
Posttraumatic psychiatric disorder	6,348	5,272	1,076

PATIENTS HOSPITALIZED UNDER VA AUSPICES FOR CONDITIONS PROBABLY ASSOCIATED WITH BRAIN INJURY, AS OF OCT. 31, 1959 [1]

Diagnostic group	Total	VA hospitals	Non-VA hospitals
Total	1,550	1,495	55
Encephalopathy	65	65	0
Brain injury	210	200	10
Epilepsy	295	280	15
Traumatic psychiatric disorder	980	950	30

[1] Figures shown are estimates based on tabulations of 20 percent systematic random sample of records representing the census of patients as of Oct. 31, 1959.

8. INFORMATION PROCESSING

Senator HUMPHREY. One of the great challenges facing medical science is to "digest" the "mountains" of information which are available in the form of medical records. To do so requires more than the unassisted capabilities of the human mind. It requires the mind supplemented by machines (which are in turn, of course, created by the human intellect).

Machines have multiplied the capacity of the human mind to store, classify, and retrieve immense amounts of data, as well as to help in theoretical processes.

Last year, in Paris, 2,000 delegates attended the first International Conference on Information Processing, as organized by UNESCO. The proceedings have been published in a 600-page volume.

Only a comparatively few references in the course of the proceedings were related to computers in biomedical science. But the mere quantity of such references is no index of the significant interrelationship. Beyond question, UNESCO has an important role to play in strengthening science's use of computers for biomedical purposes.

Present and potential use of computers for this purpose will be set forth in a separate committee print, which we hope to issue, entitled "The Federal Government and Medical Electronics."

5. ROLE OF FOOD AND AGRICULTURE ORGANIZATION

Senator HUMPHREY. Previous reports in our series have made reference to the interrelated work of the Food and Agriculture Organization and that of WHO and UNICEF.

For example, in our fourth committee print on the World Health Organization, we noted in pages 100 ff. the work of joint FAO/WHO committees on nutrition, regional nutrition conferences, nutrition training courses, surveys, etc.

The importance of research in nutrition, as such, is highlighted in part III, page 947.

But what of man's capacity to stay alive by obtaining any food whatsoever?

I believe that the following important statement by the distinguished Director-General of FAO, Dr. B. R. Sen, indicates the crucial implications of FAO's Freedom from Hunger campaign. The statement was published in the April 1960 "United Nations Review."

After it is an article which appeared in the subsequent issue of the "United Nations Review" describing the initial progress on the Freedom from Hunger campaign. There has been a wonderful response to the campaign from private nongovernmental organizations, from the highest religious leaders of the world, from agricultural leaders and others.

FOR FREEDOM FROM HUNGER TO ASSURE THE TRIUMPH OF HUMAN DIGNITY

(By B. R. Sen, Director General, Food and Agriculture Organization)

In the long struggle to master the world around us and to turn it to our advantage, mankind has known many triumphs. We can travel across every part of the world in a day or two. We can transmit our thoughts in a second. We have conquered diseases which took heavy toll before. But the most basic triumph still eludes us. We still have not conquered the hunger which continues to cast its shadow over the lives of millions of people in the poorer regions of the world.

Food is a basic necessity of life and the fight for food has been one of the greatest forces in the development of human society. In search of food, men have crossed oceans and colonized strange and hostile lands, and the lack of food has often led to social upheavals.

The statistics of want are fragmentary and unreliable. Unfortunately, we get the least and the poorest information from the areas where people's needs are greatest. Nevertheless, it seems clear that more than half of the world's population is seriously underfed. More than a billion people are not getting enough food for proper physical development, for adequate resistance to disease, for profitable labor or for recreation. At the other extreme, it seems clear that less than a quarter of the world's population is adequately fed.

Tuberculosis mortality figures and overall life expectancy statistics are both closely related to living standards. These are some of the figures to illustrate the gross inequality of living standards in different parts of the world: in the United States 9.3 persons per 100,000 die of respiratory tuberculosis each year; in Taiwan the death rate is 56.3 per 100,000; in Australia it is 9.2 per 100,000; in Brazil, 89.3 per 100,000.

Life expectancy tables for the average newborn child tell an equally grim tale: in the United States the infant's expectation of life is 70 years; in India, 32 years; in Sweden, more than 70 years; in Egypt, 38 years.

It is true that the world food position is a little more satisfactory than it has been in past times but today we are confronted by a new challenge in human history which, if it is not faced, could easily sweep away the little progress we have so far made—this is the upward surge of world population at a rate which has never been approached before. Through most of man's history, high death rates, due to disease and lack of control over natural surroundings, prevented

his numbers from increasing very considerably. Then the development of medical science, the new triumphs in death control, began to remove the influence of this brake on population growth, and our numbers began to soar.

In 1600, the population of the earth is believed to have been 300 to 400 million people, and it was not until about 1800—two centuries later—that this figure had doubled. By 1900—just 100 years this time—the population had risen to about 1,500 million people. In only 60 years since then, our numbers have doubled again—to about 3,000 million people. With world population rising by more than 50 million people a year, it will not take 60, but only about 35 years to double our numbers once more, and all the indications are that 6,000 to 7,000 million people will enter the year 2000. If today we are having trouble in producing adequate supplies of food for 3,000 million people, what a problem lies only 35 years ahead in feeding twice that number.

There can be no doubt that this is the great problem of our time. Certainly current international political tensions and disagreements must be resolved if the human race is to survive, but the problem of population and food supplies is every bit as important and urgent and, if not tackled vigorously, may lead to dangerous situations. This was in the forefront of the minds of the representatives of 44 countries who met at Hot Springs in May 1943 to discuss the role a world organization could fulfill in meeting this world problem. In October 1945 they established the Food and Agriculture Organization at a meeting in Quebec.

In its 14 years of existence, FAO has worked with considerable effectiveness. The organization has established a world information service, in the fields of agricultural economics and technology, fisheries, forestry and nutrition, of a quality and on a scale which has never before been equaled. Its activities in promoting and servicing international cooperation have influenced programs in every part of the world. Today, trade policies and programs are often affected by discussions which we have sponsored, and in scores of countries, agricultural research programs are being enriched and accelerated by the information which we have helped technical workers to exchange. In the past 9 years, we have sent about 2,500 technicians into the field in more than 60 countries to help them develop their primary industries.

Gradual development

During this period of FAO's existence, governments all over the world have set underway development programs to ease the problems of the world's underfed people. In spite of all these efforts, however, the goals remain as distant as ever.

A true crash program is not applicable to agricultural development. Agriculture must move to the slow cycle of the seasons, often at the mercy of unfavorable weather. Then, too, agriculture is not carried on in a vacuum—it is intimately related to the general economy, and any appreciable improvement in agricultural production is usually possible only as a result of improvement in the dozens of industries that supply and service agriculture. And it is not sufficient merely to increase food production. The consumer must have the desire and the ability to pay for more food, and this again involves development of sectors of the economy other than agriculture.

In the past few years, food production has barely kept pace with population growth, 2 percent against 1.6 percent on the world average. But this increase is not evenly distributed all over the world. Spectacular gains have been achieved mostly in countries which already have plenty of food, while in some parts of Asia and Africa and Latin America prewar levels of food production have not yet been reached: Unless we take much more vigorous action than we are taking at present, we could even lose gound and the situation become much worse than it is.

The experience of industrially advanced countries shows that, by the application of scientific methods and proper management of the economy, productivity can be increased to limits hitherto believed unattainable. In the United States, the phenomenal success of intensive cultivation seems seriously to challenge the validity of the law of diminishing returns, as, for instance, in the production of wheat. The yield per acre of rice in Japan provides another instance of the possibilities that are open to the less-developed lands of southeast Asia. Improved agricultural tools and machinery, rational use of fertilizers, farm credit and marketing arrangements can bring about a radical change in the present low-yielding agricultural practices of many countries.

Danger of apathy

Soil scientists believe that there are great possibilities of increasing the area of land now actively under cultivation. It is true that there are no lands comparable to the Argentine pampas which can be opened up for cultivation, but there is much that can be made to yield food crops by proper irrigation and reclamation. A recent FAO study of the Ganges-Brahmaputra Basin, where 130 million people live, shows that by more intensive use of land and water that is now mostly running to waste, more crops could be raised and thus production of food could be more than doubled. There are considerable potentialities for increasing the area under cultivation also in the temperate zones of the Southern Hemisphere, such as southern Australia, Uruguay and southern Brazil. There are further large land reserves in Canada and the Soviet Union. Even the lands that have suffered from man's improvidence and negligence can, with proper measures, be rendered fertile again.

The danger, therefore, to the world's future food supplies does not spring so much from an intrinsic lack of nature's gift or human resources as from indifference, apathy, and lack of action. The freedom-from-hunger campaign, which was proposed by me about 18 months back at the Economic and Social Council of the United Nations and which was adopted by the FAO Conference at its 10th session in November last year, has been designed to rouse public opinion about the true state of affairs in regard to the world's food problem and to turn resignation and despair into hope, and apathy into conscious effort.

The campaign is not intended to replace any programs at present underway for the improvement of food supplies and better nutrition. It is intended to supplement and reinforce programs which governments and international agencies are already carrying out, to create a better climate of opinion in which these programs will work with greater effectiveness. It is intended to awaken the people of underfed countries to the real possibilities for improving their lot and to encourage them to greater effort. It is intended to inform people in prosperous countries about the condition of people less fortunate than themselves and to enlist their support for measures aimed at improving the situation. And it is intended to help increase our knowledge of present conditions and of methods of improving them. In other words, the compaign is conceived in the spirit of rededication to the objectives of FAO and intensification of efforts toward their achievement.

Research program

The activities of the campaign will fall under three broad categories: information and education, research, and action programs.

The information and education program will include studies and investigations aimed at better information regarding what needs to be done to combat hunger and malnutrition, what the technical and economic possibilities are for increasing production and improving distribution, and how the problems of hunger and malnutrition can be tackled with the techniques and resources now available and a widespread educational program of public discussion and debate based upon this information. The research program is intended to intensify the search for solutions to problems of agricultural development in individual countries and regions and, through applied research, to provide the basis for establishing or strengthening national programs of agricultural and economic development and for planning specific projects to supplement or intensify the existing programs.

The heart of the campaign will be the national action programs. It is from them that increased production, improved distribution of agricultural products and the other prerequisites to freeing the world from hunger will flow. Most of the projects will relate to increasing food production, improvements in nutritive quality, prevention of food losses, increased effectiveness in distribution or in stimulating better food habits and consumption and also to associated social, economic and institutional questions. FAO will also help, when requested, in the selection, formulation, and implementation of action projects, even when the funds for these projects are given directly by the donor to the recipient country.

The campaign will be officially launched on July 1 this year and will run through 1965. We expect that the major part of this year will be taken up with planning the program and getting a start on basic studies and reports to be made during the campaign. In terms of the Conference resolution, the FAO Council has appointed an advisory campaign committee of representatives of

member countries to assist the Director General. The first meeting of this committee is scheduled to take place in May this year. A campaign trust fund has also been established to which member governments, nongovernmental organizations, religious groups, foundations and private individuals are being invited to contribute. The FAO Conference has authorized me to set up a special advisory committee of nongovernmental organizations and an NGO conference will be held for this purpose in Rome in May.

Organizations' roles

By 1963 we expect to have gained a great deal of new information, and we hope that the campaign will be bringing results in new activity and new enthusiasm for our aims. In 1963, to celebrate the 20th anniversary of the Hot Springs Conference, which led to the foundation of FAO, we will support the organization of a series of national food conferences which will culminate in a World Food Congress at FAO headquarters in Rome. In 1964 and 1965, we will analyze and disseminate the conclusions of the national and world food congresses and assist in implementation of their recommendations. In 1965, we will review the results of the campaign and report to our 20th anniversary Conference session, which will, no doubt, recommend further action arising out of the campaign to member governments.

How can particular organizations contribute to this worldwide effort? One way is for a nongovernmental organization to carry out an intensive public information program in support of the campaign and to raise funds for sponsoring research and action projects. Another is sponsoring pilot and demonstration projects. A compendium of specimen action projects is now under preparation by the FAO secretariat and will be available for distribution shortly. The organization may select projects from this list or adopt its own projects which may fall within the scope of the campaign.

And last but not least, organizations may contribute to the campaign trust fund to be spent for the purposes of the campaign in accordance with the financial regulations laid down in FAO's constitution. In order to fulfil its responsibilities of leadership and coordination of national and international efforts, FAO will require funds which are not provided in its regular budget. The response that the campaign has generated in various parts of the world, among governments, voluntary associations, professional groups and private citizens, has given me confidence that the necessary funds will be forthcoming.

I feel sure that when the objectives of the campaign are more widely known and its implications in terms of human welfare and social justice are more adequately grasped, the campaign will assume the character of a true world movement.

We live in a very exciting age. Science has brought new visions of man's mastery over nature. But the achievements of science must be matched by the triumph of human dignity. Without that, the ultimate human purpose of science will not be fulfilled. What the world needs most today is not merely a wider exchange of material benefits, essential though it is, but also a conscious dedication to the right of man to grow to his full stature, regardless of the place of his birth, or the color of his skin, or of the faiths and beliefs he may cherish.

I call upon all interested organizations and individuals to support the campaign in the name of this human solidarity, without which all our efforts to banish hunger from the world will lose their true meaning and purpose.

[From United Nations Review, August 1960]

FAO Launches Worldwide Freedom-From-Hunger Campaign

One-half of the world's population does not have enough food or the right kinds of food. Nevertheless, population is increasing at a faster rate than ever before, particularly in the regions where food supplies are inadequate.

This is the general problem the Food and Agriculture Organization's freedom-from-hunger campaign is designed to meet, said B. R. Sen. FAO Director-General, at the official launching of the campaign at FAO headquarters in Rome on July 1.

Mr. Sen pointed out that the central problem is not overpopulation but underproduction. "There are vast resources to be exploited in this world. But unless food production can be stepped up sharply and within a short time, we shall be faced with chronic malnutrition for increasing millions of people, and possibly

with disastrous famines. Such developments are bound to affect the peace and well-being of the world as a whole," he declared.

The campaign is designed to recognize this threat and to lose no more time in taking necessary action to meet it, Mr. Sen said. He called on those present to reaffirm the conviction "that hunger is neither inevitable nor irremediable and that * * * it is within our power to bring this old affliction under control."

At the Rome ceremony, which was attended by members of the diplomatic corps and representatives of the Italian Government, messages of support were read from many national leaders, including the President of the United States, the President of the French Republic, the Prime Minister of Great Britain, and Pope John XXIII. Secretary-General Dag Hammarskjold sent a special message pledging the vigorous and enthusiastic support of the United Nations.

The campaign is to be coordinated by FAO and carried out by international organizations, governments, and nongovernmental groups and will run to the end of 1965. Under the campaign information and educational programs will spread kowledge of the extent of the world's food problem and the possibilities for solving it; research programs will develop new techniques for increasing food supplies; national action programs, the heart of the campaign, will demonstrate improved food production techniques and assist in their wider adoption in underdeveloped countries.

It is expected that at the conclusion of the campaign the scale and variety of the world food problem will be better and more widely understood, that a new unanimity of world determination to solve it will have been created and that new programs of development will have been started leading to a solution of the problem.

The campaign was formally approved by the FAO Governing Conference at its session in November 1959. Even before that date, the West German Catholic Church had pledged $100,000 to the purposes of the campaign.

In the first half of this year growing support has been shown for the campaign from governmental and nongovernmental quarters.

The Netherlands Government has contributed $20,000 for campaign expenses. Also in the Netherlands, bakers delivering bread are selling reprints of the bread ration card which the Dutch housewife thankfully discarded 15 years ago. Three million cards have been printed, and the proceeds from selling the cards at 25 cents each will be turned over to FAO to finance an expanded breeding program for wheat and barley in the Near East.

Representatives of 72 international nongovernmental organizations have strongly endorsed the Food and Agriculture Organization's freedom-from-hunger campaign and have outlined ways of participating in it.

The representatives met at FAO headquarters in Rome from May 3 to 7 and indicated how their organizations would cooperate in the campaign at both national and international levels. Their report emphasized that programs of information and education should lead to "the allocation of appreciably greater resources for the education of peoples, for research, for physical investment, and for international leadership and coordination than the nations of the world are at present making."

The conference noted that funds are needed immediately to develop the campaign. "It is thought that the membership of NGO's will be especially responsive to requests for financing action projects in areas of hunger," its report said. "In order for these opportunities to be seized, it is considered imperative that the necessary international framework be established by governments which would enable this interest to express itself within the concept of the freedom-from-hunger campaign."

Support for the FAO campaign was also expressed by 41 representatives of the world chemical fertilizer industry from various regions who met at FAO headquarters on April 26 and 27. They agreed to recommend that their companies and associations support the FAO campaign and suggested that FAO invite the industry to contribute $1 million over 2 years to be spent on an international fertilizer program.

6. ROLE OF REGIONAL INTERGOVERNMENTAL ORGANIZATIONS IN HEALTH ACTIVITIES

Senator HUMPHREY. The United States is a member of numerous intergovernmental organizations which on a regional basis work in

whole or in part in the field of health. Our principal effort is in the Pan American Health Organization which also serves as regional office for the Americas of the World Health Organization. PAHO was the subject of the ninth committee print in our series.

In the present section, mention will be made of several additional regional intergovernmental organizations.

A. Atlantic Community Organizations

As a member of the Atlantic community, it is especially appropriate that we refer at the outset to intergovernmental organizations within our own general area.

The Atlantic community has the strongest scientific nucleus to be found anywhere within the world. It has the strongest degree of scientific communication and cooperation.

By this "community," I refer to—

(*a*) The United States and Canada, on this side of the Atlantic;

(*b*) NATO and other Western European powers on the other side of the Atlantic.

At present there are a considerable number of instrumentalities serving various groupings among these countries. The following are a few of these instrumentalities:

1. The Office of European Economic Cooperation*;
2. The North Atlantic Treaty Organization;
3. The Western European Union;
4. The European Atomic Energy Community.

It cannot be our task to undertake a detailed analysis of the background of all these intergovernmental organizations. Suffice it to say, however, that each and every one of the organizations which I have listed plays some role in connection with the life sciences. Usually, this role is not in medical research as such. But their work plays an indirect role in fostering such research in the long run.

1. Office for European Economic Cooperation

Consider the Office for European Economic Cooperation.* One of its most valuable contributions has been to help strengthen the pool of scientific and technical manpower within the cooperating nations. Of course, the life sciences have been but one of the vast array of sciences which are the concern of OEEC. Engineering science is somewhat of a higher interest to an organization concerned with European economic strength.

But the life sciences may benefit from well-balanced expansion of the total scientific and technical base within each nation.

SENIOR VISITING FELLOWSHIPS

The National Science Foundation has the responsibility for administering the Organization for European Economic Cooperation senior visiting fellowship program in the United States. Twenty-seven fellowships, twelve of them in the life sciences, were awarded last year to assist institutions in incorporating recent worldwide developments into their own programs.

During fiscal year 1960, 63 fellowships were awarded in the medical sciences. There were 19 graduate, 16 cooperative graduate, 9

*Reconstituted as the Organization for Economic Development and Cooperation, including U.S. membership.

graduate teaching assistants, 17 regular postdoctoral, and 8 science faculty. In addition, 114 were offered awards in biochemistry, 20 in biophysics, 160 in general biology, 56 in genetics, 29 in microbiology, and 239 in zoology. These are the classifications of the applicants themselves.

Article on Shortage of Trained Manpower[1]

Indicative of the shortage of scientists in Western Europe is the following article which was published in the "Science Newsletter" in 1957:

[Science News Letter, November 16, 1957]

MANPOWER—EUROPE LACKS SCIENTISTS

Western Europe is suffering from scientific manpower anemia. It is even worse than that currently afflicting the United States.

This was indicated by a British Government official who told members of the National Science Foundation at a colloquium that "Western Europe has a very long way to go in solving its scientific and technological manpower problems."

Three specific problems plague Western Europe's quest for more scientific manpower and must be overcome before a solution can be found, Alcon Charles Copisarow, scientific attaché at the British Embassy in Paris, said. These are military service requirements; the extent to which womanpower should be used in science and technology; and how to use scientists and technologists already on hand more effectively.

Every Western European country is suffering a shortage of scientists, engineers, and technologists. France, for example, is seriously short in every sector of science and has fewer science students today than in 1938.

At the same time, the Western European nations are initiating crash programs to alleviate the situation. England hopes to almost double its output of scientists and technologists in the next 10 years and France has initiated plans to double the number of its science graduates and treble the number of its engineering graduates.

A recent study by the Organization for European Economic Cooperation, Mr. Copisarow said, shows that in 1954–55 Western European universities granted a total of 33,000 science degrees. In the same year in the United States 53,480 degrees were granted.

Well below 1 percent of the total working force in Western Europe is engaged in science, whereas it is well above 1 percent in the United States. Today, the British scientist said, there are 630,000 scientists at work in Western Europe.

Mr. Copisarow also reminded the group that last year Russia graduated more scientists, engineers, and technologists than the United States, Canada, and Western Europe combined. He attributed this, in part, to the tremendous number of Russian women in scientific studies. Mr. Copisarow also warned that, in time, Red China would make its scientific weight felt in the world.

2. North Atlantic Treaty Organization

Senator HUMPHREY. In the preceding section reference has already been made to important exchange programs being carried on under the auspices of the North Atlantic Treaty Organization.

Through the NATO scientific fellowships, it has made a particular contribution to the life sciences: For the 1959 fiscal year, 35 NATO fellowships were granted in the life sciences out of a grand total of 91. Of the 35, 3 were in anthropology, 22 in biological sciences, 7 in medical sciences, and 3 in psychology.

It is fair to say in this connection that no single Member of the Senate has given more attention to strengthening of the scientific community within the Atlantic nations than has my able colleague on the Committee on Government Operations, Senator Henry M. Jackson, of Washington.

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[1] See pp. 512, 513 ff for a pertinent letter from the U.S. Office of Education.

NATO SCIENCE COMMITTEE STUDY

As this particular publication was going to press, there came to our attention another significant study conducted under the auspices of the Science Committee of the North Atlantic Treaty Organization. This effort culminated in an important 18-page report, entitled "Increasing the Effectiveness of Western Science." To carry out the study, the Ford Foundation provided a portion of the financial support. The Fondation Universitaire of Brussels administered the funds. A distinguished scientific study group prepared recommendations on promoting scientific progress by promoting national and international action. A separate section was devoted to the application of science—the interrelationship between pure and applied science, operational research on problems of development, industrial research and its relation to industries, and universities and government.

As indicated by the above topics, this is basically a report of interest to the physical sciences. Nevertheless, its indirect impact cannot help but be felt by the biosciences as well. One of the areas which the report suggested as worthy of further study for international research, for example, is ecological effects of pesticides and pollution.

Included in the study was specific reference to problems of international scientific documentation.

3. Western European Union

Still another organization for cooperation is the Western European Union. It has a Public Health Committee which has helped to strengthen cooperation within the European countries in various matters of health.

A few illustrations of the work of the Social Division of WEU, and of this Committee in particular, may be noted in the titles of several of its releases:

"Public Health Aspects of the Peaceful Uses of Atomic Energy."
"Recommendations on the Public Health Aspects of Civil Defense."
"Recommendations on the Rehabilitation of the Disabled."
"General Principles Concerning the Rehabilitation of Amputees."

4. European Atomic Energy Community

Another pertinent organization is the European Atomic Energy Community. It is, of course, concerned with the deveopment of nuclear energy for peaceful purposes. EURATOM will, of course, be a great source for strengthening the reservoir of skills concerned with nuclear science. The use of radioisotopes in medicine will no doubt benefit greatly from this and comparable developments.

We have cited above but a few of the diverse phases of national and intergovernmental biomedical cooperation.

B. Medical Assistance in Asia—Activity Under Colombo Plan

We turn now from the European area to the Asian area. Here, there is a valuable guide in the form of reports on technical cooperation under the Colombo plan. These reports document the very considerable extent to which the various nations, including our own, have provided international medical assistance to South Asian lands.

A letter of July 9, 1959, and an attached brief summary from R. H. Wade, Director of the Colombo Plan Bureau, follow:

THE COLOMBO PLAN BUREAU,
Colombo, Ceylon, July 9, 1959.

DEAR SENATOR HUMPHREY: I was interested to see in your letter of May 28 that the Senate Subcommittee on Reorganization and International Organizations is conducting an international health study, and I was particularly gratified to read your comment that you are seeking to strengthen American multilateral efforts through the Colombo plan so as to improve the well-being of the peoples of the area. I feel that the informal and flexible structure of the Colombo plan has something worth while to offer in helping the development of South and Southeast Asia in the field of health, as well as in other fields of activity, and we are proud of our association wth the U.S. programs which are, in total, the largest of our series of bilateral programs.

I am pleased to be able to enclose a short article sketching the contribution that has been made under the Colombo plan to the health of the peoples of South and Southeast Asia. As the United States had not been a member of the technical cooperation scheme of the Colombo plan until January of this year, emphasis on American aid is less than proportionate to the size of her contribution, but I am sure you will understand this does not reflect any lack of appreciation of the tremendous effort that the United States is putting into this field, as into others.

As you did not mention the report of the Council for Technical Cooperation among the documents to which you referred, I am enclosing a copy of the 1957–58 report. You will see some references to technical assistance in the field of health on pages 44 to 46. I shall also ask my successor, Mr. J. K. Thompson, to send you a copy of the current year's report when it is published—we are working on the draft at the present moment.

Yours sincerely,

R. H. WADE, *Director.*

COLOMBO PLAN ASSISTANCE IN THE FIELD OF HEALTH

In recent years, most countries in south and southeast Asia—the Colombo plan region—have been able to record marked progress in the field of essential social services such as health and education, housing, water supply, and sanitation. But a great deal of leeway still remains to be made up as nutritional standards are low and diseases like malaria, cholera, smallpox, tuberculosis, and yaws still constitute the major health problems in several countries of the area.

Through concentrated efforts made in recent years, many of the health problems are being successfully dealt with, and some significant achievements have been recorded in some countries. National expenditure on health and other social services has continued to rise, and Colombo plan aid has helped in supplementing and stimulating national efforts.

Assistance has been given in many forms, through the supply of expensive medical instruments and laboratory equipment, the services of experts, and in the form of training facilities to students and technicians in the member countries of the Colombo plan. Under the Colombo plan technical cooperation scheme alone, from its inception in 1950 to the middle of 1959, 983 training places and the services of 266 experts were provided in the field of medicine and public health.

The training facilities provided under the Colombo plan range from the training of nurses and technicians to the training of specialists in various branches of medicine and surgery, including the use of radioactive isotopes for medical purposes. Specialists who were assigned to the region have carried out assignments in organizing university teaching in medicine and surgery, and introducing advanced methods in hospitals and clinics. Instructors have been provided for training field workers in preventive medicine as well as nursing and technical personnel to work in this field.

Many countries have launched programs for the eradication of malaria. India, Indonesia, Ceylon, Cambodia, Laos, North Borneo, Sarawak, Vietnam, and Nepal have been assisted by the United States in this effort. Approximately $5 million was utilized under the President's Fund for Asian Economic Development in support of the malaria program in the Colombo plan area. The fund will also finance a malaria training center in the Philippines. India launched a national

malaria control program in 1954 with active cooperation and participation of the United States technical cooperation mission. The Malaria Institute of India is in charge of the coordination and implementation of the program. It has since been decided to convert the national malaria control program into the national malaria eradication program and the WHO and the United States technical cooperation mission have agreed to assist in this endeavor with financial help amounting to $1.5 million and $8.7 million, respectively. The annual number of malaria cases in India has been reduced from 80 million to 20 million. In Laos, the antimalaria campaign, started in 1956 with American assistance, has had good results—the Laotian staff engaged for this purpose was trained in Thailand. The Philippines has made a general offer of Colombo plan scholarships for training in various fields including malariology and public health.

Australia and the United Kingdom have contributed considerably in combating tuberculosis in the region. Australia has trained a number of nurses especially in this field and has continued to provide nursing staff for the Lady Templar Tuberculosis Hospital, Kuala Lumpur, Malaya. She had also provided the services of a director of tuberculosis to advise Singapore, Brunei, Sarawak, and North Borneo on tuberculosis control. This has been followed up with a team of five experts to help run a pilot mass survey in which Singapore personnel trained in Australia will be working. Australia has also supplied equipment for the project. The United Kingdom has provided equipment and has trained personnel for the Children's Tuberculosis Sanatoriums at Madanapalle and Mehrauli in India. The Madanapalle Sanatorium will serve as a training center for both graduate and postgraduate students. The United Kingdom has also accepted medical officers from Nepal and Thailand for training in the tuberculosis control program. The Government of Indonesia is making an effort to reduce the incidence of tuberculosis by combining surgical treatment with traditional methods; Japan is assisting this program by accepting a medical officer for training.

In 1956, counterpart funds raised from the sale of wheat donated by Australia to Ceylon were used to establish antituberculosis clinics and an institute of hygiene. Australia has provided X-ray equipment to the Chest Hospital at Welisara. A special ward of 60 beds was staffed by trained nurses from Australia. The Australian team has completed its assignment, and instruction in the school is being undertaken by Ceylonese personnel trained by the Australian nurses. Over £200,000 was spent by Australia on technical assistance mainly for maintaining the team of nurses at Welisara and for training Ceylonese nurses in Australia.

Canada has provided valuable assistance to the region in the treatment of cancer. She has supplied the Rangoon General Hospital with a cobalt beam therapy unit and is now following up the assistance with two experts and the provision of training for three medical officers of the hospital in radiotherapy. India received three cobalt therapy units and a cobalt beam therapy unit source in 1957–58. Ceylon, too, received from Canada a cobalt therapy unit for the Cancer Institute at Maharagama.

New Zealand has trained a number of students in dental health and public health. North Borneo is building up a schools dental service and New Zealand has assisted this project by assigning dental nurses to establish clinics at Sandakan and Jesselton, and to train nurses for these centers. She is assisting a similar project in Sarawak by training personnel in dental health nursing. £65,000 was donated to Ceylon for a dental nurses training school at Maharagama, which was established on the recommendation of a New Zealand specialist in dental hygiene. New Zealand provided a principal and dental Sister Tutors for the school in addition to the provision of equipment and funds for buildings as capital aid, and the operation is now under a Ceylonese director who was trained in New Zealand.

The All-India Institute of Medical Sciences, a center for advanced training and medical research, has been established in Delhi with the help of a Colombo plan grant of £1 million by New Zealand.

The Solo Rehabilitation Centre, Indonesia, is a project which has received assistance from more than one country and is a fine example of the way in which external assistance and national effort have merged for people's welfare. This international training institution has been established with assistance from Australia and United Kingdom and has already earned considerable reputation as a center for the physical and vocational rehabilitation of the disabled. Aus-

tralia has provided an expert and equipment, and both the United Kingdom and Australia have trained personnel.

India has assisted Nepal by training students and supplying medicines.

In the academic field Australia has helped the region by providing on two occasions teams of lecturers and examiners to coach students from Singapore and Malaya for the primary examination of the Fellowship of the Royal Australasian College of Surgeons. This facility has helped numerous students who otherwise would not have been able to qualify for membership of the college owing to the financial expenses involved in going abroad for the examination. Australian specialists are also working and demonstrating in Singapore hospitals. Similar demonstration teams have come to the region from Canada and United Kingdom.

In addition to the malaria eradication program, the United States has helped extensively in various public health and sanitation endeavors, especially in Cambodia, Laos, Vietnam, Pakistan, Philippines, and Thailand. This includes assistance to the sanitary wells program, eradication of certain endemic diseases such as yaws, and assistance in rural health.

Australia, Canada, the United Kingdom, and New Zealand have helped the region by providing training facilities and experts in various types of nursing and medical fields, and by the provision of equipment to hospitals and similar institutions. Institutions which have received equipment include the Duchess of Kent Hospital, Sandakan, North Borneo (given by Australia), Chulalongkorn Hospital Training Centre, Bangkok (by the United Kingdom); Rangoon General Hospital (by the United Kingdom), Royal School of Medicine, Phnom-Penh (by the United Kingdom), and many others. The countries which provided training places in the field of health and medicine up to the end of March 1959 included Australia (360), United Kingdom (302), Canada (125), New Zealand (103), India (75), Ceylon (10), Japan (7), Pakistan (1). The United States provided 1,019 training places in health and sanitation. The experts were provided by Australia (150), United Kingdom (55), New Zealand (31), Canada (28) and Japan (2). The number of United States experts as of March 31, 1958, was 95.

THE COLOMBO PLAN BUREAU,
Colombo, Ceylon, 9 July 1959.

C. HEALTH ACTIVITY IN NON-SELF-GOVERNING TERRITORITIES

Senator HUMPHREY. The World Health Organization is, of course, the most important source of information bearing upon health activities—throughout the world—among both independent nations and non-self-governing territories.

WHO documents, together with other UN documents, are particularly valuable for data on the health situation in non-self-governing lands.

One such useful document is entitled, "Progress Achieved by the Non-self-governing Territories in Pursuance of Chapter XI of the Charter—Health Services and Activities in the Non-self-governing Territories," issued June 23, 1959, Document A 4128, by the United Nations General Assembly. This particular report, for example, describes health training of indigenous populations in many areas of the world. It touches upon what were formerly known as the Belgian Congo, French West Africa, the Federation of Nigeria and other areas. It also summarizes the work of several medical schools.

MEDICAL CRISIS IN BELGIAN CONGO

Symbolic of how a so-called "domestic" matter may emerge into an international problem is experience as regards the Republic of the Congo. In 1959, the medical situation in what was then known as the

Belgian Congo would have been regarded as a matter for the Belgians' and the Congolese own concern. But the sudden events of 1960, after the Congo attained independence, have reminded the world of how an "internal" situation may sometimes evolve into an international crisis. The breakdown of health services following the sudden departure of Belgian medical personnel confronted the United Nations with a crisis of the first magnitude. The World Health Organization has responded excellently to the challenge as indicated in the following article from the New York Times.

ARTICLE ON MEDICAL CRISIS IN THE BELGIAN CONGO

[New York Times, Sept. 30, 1960]

FOREIGN DOCTORS BATTLE IN CONGO IN A MEDICAL WAR ON DISEASE—PREVENTIVE CARE FELL INTO CHAOS WHEN BELGIANS WITHDREW—U.N. UNIT TRIES TO HALT THREAT OF EPIDEMICS

(By A. M. Rosenthal, Special to The New York Times)

LEOPOLDVILLE, THE CONGO, September 29.—Just 48 hours after the United Nations decided on its Congo rescue operation, a dozen men carrying small black bags landed in Leopoldville to begin a battle that could last 20 years.

The battle—possibly the most serious and most difficult of the United Nations huge collection of Congo problems—was to build up medical frontline defenses against the danger of epidemics and to go on from there to create this country's own medical service.

The first doctors to arrive were Norwegians. Since then physicians and nurses from 30 or more countries have spread out through the great stretches of the Congo, 2 or 3 to an outpost hospital.

They have worked to put back into operation the preventive medicine program established by the Belgians but thrown into near paralysis by the Belgian withdrawal.

FOUR-HUNDRED HOSPITALS, FORTY DOCTORS

When the Belgians left the Congo they took with them the water purification engineers, the medical administrators, the technicians to repair hospital equipment. There were 400 hospitals—but only 40 had doctors.

Of 1,200 Belgian doctors in the Congo before independence, only 100 remained, aside from those who stayed in the secessionist province of Katanga. Just outside Leopoldville is one of the most modern drug manufacturing and medical equipment repair plants in the world. But only 1 of 33 Belgian technicians remained. Until the others are replaced, only the large supply of stocks is of use to the United Nations.

The center of the medical effort is the office of Dr. James Mackenzie Pollock, a senior official of the World Health Organization who fought malaria in India and bubonic plague in Palestine and was sent here from his post as chief of medical services for Middle East refugees.

He is running the United Nations first across-the-board medical program, coordinating activities of the World Health Organization and the medical teams contributed by League of International Red Cross Societies and the Swiss-run International Committee of the Red Cross.

At the moment the main epidemic danger is of smallpox. Dr. Mackenzie Pollock has three confirmed reports of outbreaks of smallpox in western and central Congo and one unconfirmed report of an outbreak in eastern Congo.

"Just one case of smallpox would worry me," he said. "But you know what our communications are in the Congo—there may be a dozen outbreaks for all we know."

Twenty-four cases of bubonic plague, with four deaths, have been reported from Lake Albert in eastern Congo. The area has never been clean of plague, but the cases are about twice the normal incidence.

There has been a smaller outbreak of the plague—spread to man by fleas from infected squirrels and rats—around Bunia, near Lake Edouard. A team of 20 doctors from the Soviet Union was in the area, but pulled out fast when the Soviet Union agreed to withdraw its technicians from the Congo.

Malaria is also reported increasing. Big shipments of mosquito-fighting chemicals were lost during the administrative breakdown. The United Nations is airlifting supplies to provincial cities to replace these stocks.

ADMINISTRATORS NEEDED

Preventive medicine depends heavily on well-oiled administrative machinery. In the Congo these days there is almost none. This is the great danger in minds of United Nations doctors that if administrative machinery continues idle, the rust and rot will outpace the ability of emergency-program measures to keep up with epidemics.

Beyond the emergency situation is the need to set up the Congo's own medical service. There is not one Congolese doctor in the country. But there are 130 Congolese assistant medical officers who have had 4 years of medical training.

Fifty of these men will be sent to France and Switzerland for the 3 years of higher medical schooling needed to turn them into physicians.

A rough estimate is that it will take about 22 years to train enough Congolese doctors to man the country's medical services. In the meantime, the Congo will depend on foreign help. Dr. Mackenzie Pollock has sent out an urgent call for 130 more doctors and medical technicians.

REPORT FROM WHO DIRECTOR GENERAL

Senator HUMPHREY. In order to obtain an up-to-the-minute appraisal of the Congo's future health possibilities, I asked the then Surgeon General Leroy Burney to obtain a report from Dr. M. G. Candau, WHO's Director General.

On November 15, 1960, Dr. Candau replied with a valuable 10-page memorandum. Its final portion is excerpted at this point:

The current situation in the country does not lend itself to the formulation of definite plans and it is perhaps too early to go into details. However, * * * a need to think in terms of the long-range development of the country's health services, is already with us.

Whatever else the future may indicate, at this stage it seems imperative at the Organization assist the country with a fourfold programme of basic essentials, consisting of the education and training of staff; the conservation and integration of the medical and health services of the country; the intensification of the control of the major endemic diseases and the salvaging of the research programme that is being carried out in the Congo.

* * * * * * *

It will perhaps be impossible for the next decade or so to attain that high quality of medical service that existed in the Congo previous to the accession of the country to independence. Fundamentally this stems from the fact that the Congolese have still to be trained for tasks of responsibility and such a need can only be met with the passage of the required time.

In many ways the situation in the Congo that faces the Organization is an unprecedented one, both in its nature and in its requirements. Inevitably it has placed on the Organization a considerable strain, yet there is valuable experience to be gained from this sudden widening of the scope of the work of WHO and it is encouraging to know that the World Health Organization can rise to the occasion and has effectively fulfilled the new role so dramatically imposed upon it.

Section C

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1. VIEWS OF FOREIGN AMBASSADORS REGARDING INTERNATIONAL MEDICAL RESEARCH AND ASSISTANCE

Senator HUMPHREY. What is the view of foreign governments on the subject of international medical cooperation?

One way of securing an official answer to this question was by means of contacting the Ambassadors accredited to the United States. Accordingly, during the 2 years of our study, we addressed a series of inquiries to foreign Ambassadors.

Contents of committee prints were submitted to them along with the text of pertinent proposed legislation such as Senate Joint Resolution 41, the International Health Research Act, which was subsequently enacted as Public Law 86–810.

Often, I indicated my personal views on such legislation. But the Ambassadors' judgment was solicited on any phase which they themselves regarded as pertinent.

Members of the foreign diplomatic corps responded with warmth and enthusiasm to our invitation for any comments which they might regard as appropriate. Many Ambassadors designated, at our invitation, a liaison officer to work with the subcommittee staff.

While some of the Ambassadors who responded have subsequently departed for other duties, I have no doubt that the sampling of opinion which follows is a helpful indication of the sentiments of their nations.

Excerpts from the letters follow:

EXCERPTS FROM THE REPLIES OF THE FOREIGN EMBASSY CORPS

AUSTRALIAN EMBASSY,
Washington, D.C., April 14, 1959.

DEAR SENATOR HUMPHREY: I acknowledge with thanks your recent letter concerning the special study on international health cooperation being conducted by your subcommittee of the Committee on Government Operations and I have read with interest the document on "Status of World Health".

Your proposals for support of medical research projects and for the strengthening of the health provisions of the mutual security bill strike me as being most worthy ones which can do much to promote friendly relationships between nations.

* * * * * * * *

Yours sincerely,

HOWARD BEALE, *Ambassador.*

EMBAJADA DE BOLIVIA,
Washington, March 26, 1959.

DEAR SENATOR HUMPHREY: Thank you for keeping me informed on the progress of the special study on international health being made by the Subcommittee on Reorganization and International Organizations. Surely the eradication of debilitating diseases is one of the world's most urgent needs; and, since it is far removed from the political arena, it is also one of the areas in which effective action can be taken with relative ease.

The Embassy will be happy to serve as a liaison between your subcommittee staff and the medical experts in Bolivia. * * *

Please accept, Senator, the assurances of my highest consideration.

MANUEL BARRAU, *Ambassador of Bolivia.*

BRAZILIAN EMBASSY,
June 4, 1960.

DEAR MR. SENATOR: I wish to convey to you sincere thanks for giving me the opportunity of reading the report just issued by the U.S. Senate Subcommittee on Reorganization and International Organizations, on "Health in the Americas and the Pan American Health Organization."

As this report so clearly indicates, there are few fields where inter-American cooperation has shown more positive and beneficial results as that of the prevention and eradication of disease. Brazil has a long record of fruitful cooperation with the United States and other American countries, both bilaterally and through the Pan American Health Organization, and we are deeply thankful for the assistance we have received in this vital area.

On the other hand, my country has not been remiss in sharing with other countries with the same problems its experience in fighting disease, as our early and continuing association with the World Health Organization and the Pan American Health Organization is sufficient evidence. In this connection, I was very pleased to see in your report brief recognition of the role played by a distinguished countryman of mine, Prof. Carlos Chagas, in identifying and fighting one of the most painful and virulent endemic plagues of Latin America, now known as "Chagas disease."

Thanking you again for your thoughtfulness in sending me a copy of the extremely well prepared and informative report issued by the subcommittee you so ably head, I remain,

Sincerely yours,

WALTHER MOREIRA SALLES,
Brazilian Ambassador.

EMBAJADA DE CHILE,
Washington, April 1, 1959.

DEAR SENATOR HUMPHREY: I have pleasure to acknowledge receipt of your kind letter of March 20, concerning the special study on international health cooperation now being conducted by your subcommittee. You state that contact has been established with Chilean medical authorities in order to obtain their counsel on strengthening world medical research and improving world medical assistance. Also, you advised that the subcommittee had under study the strengthening of the health provisions of this year's mutual security bill, and you request the judgment of this Embassy in the matter, as well as the designation of a member of our staff to consult with your health study staff.

The initiative being taken by the subcommittee under your able direction appears very interesting to me, and I believe that whatever measures that may be adopted for the purpose of improving health conditions in the various countries of the world, as well as for better medical assistance, will be of the utmost importance to the progress of the underdeveloped countries and, consequently, for improvement in the standard of living of the different nations.

* * * * * * *

Because of the importance I assign to the matter, as I have stated above, I have brought the information you gave me to the knowledge of my Government, requesting that all possible data and recommendations of our pertinent authorities be given me as quickly as possible. As soon as a response is received to my dispatch I shall write you further.

Sincerely yours,

WALTER MÜLLER,
The Ambassador of Chile.

EMBAJADA DE COLOMBIA,
Washington, May 26, 1960.

DEAR SENATOR HUMPHREY: I take pleasure in acknowledging the receipt of your letter of May 17, enclosing the committee print just published by your subcommittee, entitled "Health in the Americas and the Pan American Health Organization."

I also received your release emphasizing the importance of pan-American unity in combating disease and conditions which breed disease.

In thanking you for your courtesy, I wish to say how gratifying it is for me to witness the interest of the U.S. Senate in a matter of such vital importance to the American Republics.

With expressions of high esteem,

Very truly yours,

CARLOS SANZ DE SANTAMARIA, *Ambassador of Colombia.*

EL EMBAJADOR DE CUBA,
Washington, D.C. April 21, 1959.

DEAR SENATOR HUMPHREY: * * * Your outline of the project is most interesting, and I thank you for the committee print, "The Status of World Health," which I have read carefully. I shall try at the earliest possible moment to send you my comments on it. * * *

Your efforts in such a vital matter are most commendable, and I sincerely believe that programs and projects of this nature not only benefit mankind, but are an important factor in the development of better relations and understanding among nations.

With kindest personal regards,

Sincerely yours,

ERNESTO DIHIGO, *Ambassador.*

EMBAJADA DEL ECUADOR,
Washington, May 20, 1960.

DEAR MR. SENATOR: With special interest this Embassy has registered the thoughtful and opportune remarks contained in the report prepared by the subcommittee headed by you, concerning health in the Americas.

We believe as you do that the time is ripe to undertake a humanitarian aggression against poverty, illiteracy, poor housing, which are breeding grounds of illness, pain and social unrest. In Latin America we need to save the human factor, the human capital, which is important to build up a strong economy.

The preservation of health among the people is a basic requirement for the advance of democracy, and all of us are proud of the excellent work already performed by the Pan American Health Organization in the fight against malaria and other diseases.

Your kind letter, dated May 17, 1960, allows me the opportunity to call your kind attention to the Pan American operation which is a program designed to improve the economic and social situation in our continent. Through this operation we are pursuing the advance of our ideas, the advance of peace and justice, and obviously the elimination of poverty and disease. We sincerely hope the Pan American operation will have its climax at the 11th Inter-American Conference which will be held at Quito, Ecuador, next March.

Needless to say I am calling the attention of the proper authorities in my country to the report prepared by the subcommittee and its capable chairman.

With my best regards, I remain,

Very truly yours,

DR. JOSÉ R. CHIRIBOGA V., *Ambassador.*

EMBAJADA DE EL SALVADOR,
Washington, June 10, 1960.

DEAR SENATOR HUMPHREY: It is with pleasure that I acknowledge the receipt of your kind letter dated May 23, 1960, with which you sent a copy of a committee print entitled "Health in the Americas and the Pan American Health Organization," issued by the U.S. Subcommittee on Reorganization and International Organizations of which you are its able chairman, and you express your desires to receive my comments about this publication.

Nothing truer than to say that the cry of the sick for help has broken all national frontiers in America, and the peoples of this continent in their desires to fight disease, the saddest legacy of mankind, have united their efforts and pooled their resources, and have entrusted the fulfillment of this tremendous task to the Pan American Health Organization.

I wish to take this opportunity to express to you, and to the other five members of that subcommittee, my congratulations for this report, which contains valuable statistical information presented in such comprehensible form that I hope it will create a better understanding of how important is the task being performed by the Pan American Health Organization and how efficiently it is carrying out its work. I wish also to congratulate you for the foreword that you have written for the report; it is satisfying to notice that you fully recognize the great challenge which health in the Americas represents to all of us, and that no country in America can be socially or economically strong until its health standards are improved to the maximum limit.

Thanking you for the courtesy of sending to me the above-mentioned report, I remain,

Sincerely,

HÉCTOR DAVID CASTRO, *Ambassador of El Salvador.*

EMBASSY OF GHANA,
Washington, D.C., April 8, 1959.

MY DEAR SENATOR HUMPHREY: Thank you very much for your letter of the 20th March, 1959, and for the latest committee print on "The Status of World Health." I note with great appreciation the indication of your resolve to strengthen the health provisions of this year's mutual security bill.

As you know, Ghana is a "new" country with limited resources but with many urgent needs in the fields of, for example, education, public transportation, telecommunication, and industry. Only a comparatively small portion of the national budget can therefore be made available in the effort to satisfy our medical needs. This allocation, when compared with our medical requirements, is totally inadequate.

Research, particularly medical research in Ghana, is at present limited by finance, equipment, technical manpower, drugs, medical research equipment, and surgical instruments of high precision which are expensive. Ghana has consequently been limited in acquiring these items and others such as X-ray apparatus for diagnosis, deep X-ray, radium, cobalt, and sezium for therapeutic application, etc.

Ghana has only 1 doctor per 25,000 population. They form only a skeleton staff for our medical services, and although research is essential, doctors are unable to carry out such work owing to the limitations of time.

All the tropical diseases listed in your enclosed committee print are prevalent in Ghana, namely, malaria, amebiasis, bacillary dysentery, typhoid, hookworm, yaws, leprosy, tuberculosis, trypanosomiasis, schistosomiasis, etc.

In addition, the greater proportion of the people suffer from minor dietary deficiencies such as excessive carbohydrate intake with defective protein and vitamin content.

Sanitation is rather poor in many areas. Pipe-borne water is available only in the major cities. Not one public utility authority has been able to establish a waterborne sewerage system in Ghana due to the present prohibitive cost.

Our people in Ghana are therefore still striving for the basic needs which American citizens take so much for granted.

With regard to improving world medical assistance, considered and informed opinion is that medical research is best conducted in close association with a medical school. There is at present no medical school in Ghana. The establishment of such an institution would facilitate research work immensely.

A medical school building and a well-equipped teaching hospital are required. The school would make available to the country trained doctors who cannot at present be obtained from other countries.

I have here, staying with me until Friday, a doctor from Ghana. If it can be arranged I think it would be useful for him to visit your office and discuss the question of the status of health in Ghana with your officials before he leaves Washington.[1] He is Dr. R. H. Bannermann, M.B., B.S. (London, M.R.C.S., L.R.C.P., M.R.C.O.G., Specialist Obstetrician and Gynaecologist, at the Ministry of Health, Government of Ghana. Traveling fellowship, Carnegie Corp. of New York, 1958–59.

Yours sincerely,

DANIEL A. CHAPMAN, *Ambassador.*

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[1] NOTE.—The project director subsequently met with Dr. Bannerman.

ROYAL GREEK EMBASSY,
Washington, D.C., April 8, 1959.

MY DEAR SENATOR: * * *

In Greece, much has been done in this field since the war, the most important achievement being the almost complete elimination of malaria, which was the cause of most of our prewar cases of tuberculosis. But there is still much to be done. Most of our hospitals are rather poorly equipped according to modern standards and find serious difficulties in securing up-to-date equipment. Our two medical faculties (Athens and Salonica) are also sorely lacking in facilities to train our medical students in modern techniques. Thirdly, research facilities in Greece are practically nonexistent, though we have first-class scientists, who make names for themselves when they go abroad. Lastly, there is a great need for sending young medical graduates in sufficient numbers overseas, especially to the United States, in order that they may get acquainted with modern techniques in medicine.

I can only wish you success in your efforts to implement your plan, for which the need is both worldwide and urgent. It is of course needless to say that I am at your entire disposal, if you think I could be of any assistance to you in this connection.

If Mr. Cahn wishes to contact this Embassy further, I would suggest he get in touch with Mr. M. Economides, second secretary.

Very sincerely yours,

ALEXIS S. LIATIS, *Ambassador of Greece.*

EMBASSY OF GUATEMALA,
Washington, D.C., April 16, 1959.

SIR: * * *

World health is an ambitious objective difficult of achievement. Efforts of individual countries in this direction are insufficient to effectively combat the threat of disease. For this reason it is highly desirable that nations coordinate their efforts, combine their knowledge and experience, study jointly the problems, and make available important knowledge and discovery to all mankind. In this way, strong nations can help the smaller countries in the common struggle against disease and ill health.

I share the view that illness and disease are the principal causes of poverty, misery, and insecurity in the world today and that not only medical research but also technical assistance in this field are of basic importance in the struggle to prolong the life expectancy and to improve the mental and physical health of the people. Through international cooperation, medical research activities could contribute to the betterment of all people. And through the medium of an adequate technical assistance program, public health services will be strengthened, general hygiene will be improved, and preventive and curative medical efforts will be extended.

My country has many excellent doctors and modern hospital facilities. We are never satisfied, however, with the level of achievement attained. We know we must still do more. Guatemala has 1 doctor for every 5,500 inhabitants, approximately. Our high birth rate, 51.3 per 1,000 population, is offset by our alarming rate of mortality, 23.2 per 1,000 population. This high death rate is brought about today by numerous illnesses and diseases, the eradication of which is possible if the advances of modern medicine were available. Suffice it to mention malaria, diarrhea, enteritis, respiratory diseases, and parasitic diseases, whose incidence is usually associated with a relatively low living standard, are prevalent in a period of economic and social transition.

Guatemala needs international aid in order to develop its own public health services and to achieve a higher health standard which, as a logical consequence, will bring about greater production and consumption and a corresponding increase in export and import merchandise. For these reasons, my country is very happy to be a working member of the World Health Organization, and its regional establishment, the Pan American Sanitary Bureau.

There is no doubt that the United States is the nation which has contributed most vastly toward the improvement of the health of mankind. A decision on the part of your Government to spread this contribution more widely would be most heartily received by all nations and by all peoples. The coordination of efforts, in accordance with the technical assistance program of the United Nations and in close collaboration with the World Health Organization, the Pan

American Sanitary Bureau, and UNICEF and other international organizations, would make the effective aid of this country in the field of medical research and assistance most valuable to the growth and development of underdeveloped countries.

I would like to conclude this letter by congratulating the president of the subcommittee for the outstanding work the committee is doing for the benefit of world health, and I would like to assure him that the efforts he is expending * * * will be highly rewarded through the gratitude of thousands of human beings all over our world whose lives will be made happier and more useful in being shown the road to good health.

With my best wishes, I remain,

Very truly yours,

CARLOS S. ANTILLÓN, *Ambassador.*

AMBASSADE D' HAITI.
Washington, June 8, 1960.

DEAR SENATOR HUMPHREY: I have read with an interest sharpened by my personal experience of the problems discussed in the committee print entitled "Health in the Americas and the Pan American Health Organization", and the inspiring release, "Total and Aggressive War Against Disease in Latin America", both of which you kindly enclosed with your letter of May 17.

It is not too late for me to present my warmest thanks and congratulations to the subcommittee and to you personally, dear Senator Humphrey, for those significant pronouncements, which stress the necessity of strengthened inter-American cooperation in waging war against disease and against the conditions which breed disease.

Sincerely yours,

ERNEST BONHOMME, *Ambassador of Haiti.*

EMBAJADA DE HONDURAS,
Washington, D.C., May 20, 1959.

DEAR SENATOR HUMPHREY: * * *

Together with your letter I received your latest committee print, along with a release, portraying the challenge of coping with diseases all over the world.

I am aware of the fact that you have corresponded with the leading medical authorities of the different countries, among them, my own, searching for their expert counsel on the problem of strengthening world medical research and improving medical assistance.

I believe that you and your associates in the Subcommittee on Reorganization and International Organizations are doing a noble and splendid job. There are millions of people in various parts of the world who are dying without any medical assistance, victims of diseases which could be coped with with proper research and efficacious medical treatment.

My country is in the need of these medical services and undoubtedly it will benefit a great deal from such an excellent program as yours.

Dr. Roberto Zepeda Turcios, our military attaché, who is a medical doctor, will be in touch with your health study staff. He will be glad to meet Mr. Cahn any time at his convenience.

Sincerely yours,

CELEO DAVILA, *Ambassador of Honduras.*

EMBASSY OF ICELAND,
Washington, D.C., March 31, 1959.

DEAR SENATOR HUMPHREY: * * *

The valuable information contained in your message has been forwarded to the Ministry of Health and Education in Reykjavik, where I am confident it will be received with the greatest interest.

Personally I find the problem of increased international cooperation in health most interesting, and such cooperation could lead to the most valuable results for the whole of mankind. I congratulate you on your excellent work in promoting such cooperation.

Sincerely yours,

THOR THORS, *Ambassador.*

EMBASSY OF INDONESIA,
Washington, D.C., April 17, 1959.

MY DEAR SENATOR HUMPHREY: I was most interested to receive your letter of March 20 concerning the special study on international health cooperation now being conducted by your subcommittee.

* * * * * * *

As you probably know, malaria is one of the most prevalent diseases in Indonesia and I am enclosing two copies of a memo on "Malaria Control," which I hope may be of some interest to your subcommittee.

Expanded health cooperation is indeed an important and worthwhile topic and I wish you all success in your endeavors on behalf of this program.

Sincerely yours,

MOEKARTO NOTOWIDIGDO, *Ambassador of Indonesia.*

IRANIAN EMBASSY,
Washington, D.C., April 1, 1959.

MY DEAR SENATOR HUMPHREY: * * *

I most certainly appreciate the idea of a special study on international health cooperation and I realize what a great work your subcommittee is engaged in. Indeed, I cannot but congratulate those who have been instrumental in advancing this idea and who have openly shown their feelings of support.

* * * * * * *

Again, may I thank you and wish you every success in this very worthy project.

Sincerely yours,

ALI GHOLI ARDALAN, *Ambassador of Iran.*

EMBASSY OF THE REPUBLIC OF IRAQ,
Washington, D.C., January 11, 1960.

DEAR SENATOR HUMPHREY: * * *

* * * Because of the importance of your proposals, your letter was transmitted to Baghdad for consideration.

My government welcomes and supports the proposals for both strengthening world medical research and improving world medical assistance.

It is noted that the subject of expanded health cooperation has been taken up on a personal level with certain medical authorities in Iraq. My Government, however, thinks that it would be advisable and beneficial if the subject were also considered at official levels.

I want to thank you for having written to the Embassy on this matter and I am looking forward to hearing what develops from this important study.

Sincerely yours,

ALI HAIDER SULAIMAN, *Ambassador.*

EMBASSY OF IRELAND,
Washington, May 28, 1959.

MY DEAR SENATOR HUMPHREY: It was with much appreciation that I received your letter of the 20th March in regard to the special study on international health cooperation which is at present being conducted by the Senate Subcommittee on Reorganization and International Organizations under your distinguished chairmanship.

I have read with deep interest the documents you enclosed and I am gratified to learn that you have been in correspondence with leading medical authorities in Ireland on the subject of the twofold problem of (1) strengthening world-medical research; (2) improving world-medical assistance.

I thank you for inviting me to express my views on the topic of expanded health cooperation, a subject which is, in my estimation, of prime importance for the world today.

The burden of disease and disability which lies woefully on the greater part of humanity is the cause of distress and poverty to a degree beyond calculation. It is a major hindrance to economic progress and an obstacle which must be surmounted before a fuller life on this earth can be secured for mankind. Cooperative action through the pooling of resources by nations alone can cope with this vast problem which is international in its scope.

In the constitution of the World Health Organization, it is stated that: "The health of all peoples is fundamental to the attainment of peace and security and is dependent upon the fullest cooperation of individuals and States." My country has shown its firm adherence to the proposition so declared by its active participation in the work of the organization, to the executive board of which Ireland has this month been elected.

I am happy to act on your suggestion that I designate a member of my staff to be in touch with your health study staff and I have accordingly arranged for Mr. Joseph F. Shields, counsellor of the Embassy, to keep in contact with your project director, Mr. Julius Cahn.

With warm regards, I remain, my dear Senator Humphrey.

Yours Sincerely,

JOHN J. HEARNE, *Ambassador.*

EMBASSY OF ITALY,
Washington, October 13, 1958.

MY DEAR SENATOR: Thank you so much for your kind letter of October 8, the content of which I will immediately bring to the best attention of my Government.

May I at the same time congratulate you very warmly for the highly humanitarian initiative carried out by your subcommittee, for the success of which I am pleased to express to you my best wishes.

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Very truly yours,

MANLIO BROSIO, *Ambassador.*

EMBASSY OF LIBERIA,
Washington, D.C., April 7, 1959.

DEAR SENATOR HUMPHREY: * * *

Please permit me to congratulate you and your subcommittee on the initiative you have taken in promoting this worthy project. I feel confident that when my Government shall have been advised of this most essential undertaking it will be met with hearty approval. Accordingly, I shall refer your communication to my Government.

* * * * * * *

With sentiments of esteem and regards,

Very sincerely yours,

DAVID M. THOMAS,
Chargé des Affaires.

AMBASSADE DU GRAND-DUCHÉ DE LUXEMBOURG,
Washington, D.C., March 27, 1959.

DEAR SENATOR HUMPHREY: * * *

Permit me to congratulate you for drawing the attention, not only of the United States Congress and of other authorities, but of the world, once again, to the urgent problem of improving health conditions throughout the world, particularly in the less developed countries.

* * * Best wishes for the success of your endeavors in the interest of this worthy cause.

Yours sincerely,

GEORGES HEISBOURG, *Ambassador of Luxembourg.*

EMBASSY OF THE FEDERATION OF MALAYA,
Washington, D.C., July 31, 1959.

DEAR SENATOR HUMPHREY: * * *

I should like to state that we would support your proposal aimed at improving the standard of health in depressed areas. The leading facts set forth in the Committee Print No. 3 on "The Status of World Health" reveal an alarming state of affairs regarding health conditions in the "underdeveloped areas" of the world. Next to hunger, poor health conditions and facilities in these areas present the most formidable problems which call for urgent attention. Your

proposal to increase funds, already existent, to assist these countries in the implementation of their health programs is indeed an humanitarian act of the loftiest order. May I wish you success in your endeavor.

The Ambassador has nominated me to keep in touch with you and to learn more about your work in connection with the assistance of your Government for improvement of health facilities in the world.

Yours sincerely,

TAIK-CHOON LIM, *First Secretary.*

EMBAJADA DE MÉXICO,
Washington, D.C., May 25, 1960.

MY DEAR SENATOR HUMPHREY: Thank you very kindly for having sent me with your letter of the 17th instant the material on "Health in the Americas and the Pan American Health Organization" which I have read with interest particularly since, as you know, disease has no frontiers and your country and mine have for a long time now been cooperating not only as regards diseases but, what is more important, in the various ways and means of combating the cause of many ailments which directly and indirectly afflict mankind.

My heartiest congratulations for the excellent work you are doing in this connection.

Very sincerely yours,

ANTONIO CARRILLO FLORES, *Ambassador of Mexico.*

EMBASSY OF PAKISTAN,
Washington, D.C., April 3, 1959.

MY DEAR SENATOR HUMPHREY: I thank you for your letter of March 20, 1959, about the special study on international health cooperation which is being conducted under your chairmanship by the Subcommittee on Reorganization and International Organizations. I have read with interest the committee print and the release containing your observations on the need for vigorous action against what you have rightly described "mankind's universal enemy"—disease.

The need for international action in this field can hardly be overemphasized. The lead given by your great country in alleviating human suffering in the underdeveloped areas of the world is most heartening. I am greatly impressed by the work that is being done by the subcommittee under your able guidance. I am also confident that keeping in view the importance and magnitude of the problem of combating disease all over the world, adequate provision will be made in the mutual security bill for the purpose.

We are deeply interested in the progress of the work of your subcommittee and will be only too happy to be of any assistance. You may, therefore, wish to inform Mr. Julius Cahn, your project director, to get in touch with Mr. Fateh for any help that this Embassy may be in a position to give.

Yours sincerely.

AZIZ AHMED, *Ambassador.*

PERUVIAN EMBASSY,
Washington, D.C., April 15, 1959.

DEAR MR. HUMPHREY: I am happy to acknowledge receipt of your recent letter and to learn that the Senate has granted authorization for a special study on international health cooperation which is presently being conducted by the Subcommittee on Reorganization and International Organizations, under your distinguished chairmanship.

I have further noted, with great interest, the manifold and far-reaching effects that may result from the Resolution 41 that you are cosponsoring, which is now under consideration by the Senate; and also of your purpose to strengthen the health provisions of this year's mutual security bill.

These initiatives—it is heartening to state—are evidence of your preoccupation for the establishment of vital projects of world character, very much in consonance with U.S. international leadership.

I am at present devoting careful attention to examining the contents of the committee's release of March 20, 1959, and of the publication, "The Status of World Health," which you thoughtfully enclosed with your letter.

* * * * * * *

While expressing to you my sincerest congratulations on this noble undertaking, may I wish for it a most successful outcome.

Sincerely yours,

FERNANDO BERCKEMEYER, *Ambassador.*

ROYAL EMBASSY OF SAUDI ARABIA,
Washington, D.C., March 30, 1959.

DEAR MR. SENATOR: Thank you very much for your letter of March 20, 1959, together with the committee print and the release which cited the challenge of coping with widespread diseases. I would like to thank you also for your invitation for me to give my observations on the special study on international health cooperation now being conducted by the subcommittee of which you are chairman.

I personally believe in and agree with you in your views about the importance and the urgency of the need in helping and alleviating the world crises by means of eradicating the ills and the physical diseases of people, especially those coming from the underdeveloped areas of the world, with the United States as the leading country of the world with democratic ideals to sponsor such a magnificent project.

It is indeed gratifying to know that as the chairman of this subcommittee, you would do much to work toward this end.

With my kindest regards and best wishes for the success of your most noteworthy project and endeavors, please accept my sincere congratulations on your having given such a wonderful press release concerning this project.

Very truly yours,

ABDULLAH AL-KHAYYAL, *Ambassador.*

EMBASSY OF TUNISIA,
Washington, D.C., March 27, 1959.

MY DEAR MR. SENATOR: It is with great pleasure and vivid interest that I read your kind letter, the committee print on the status of world healh and the release enclosed with the letter.

May I first congratulate you on the very humane and happy initiative of conducting the special study on international health cooperation. It is indeed a sore problem which fully deserves your highly appreciated care and concerning which I am eager to contribute as much as I, and the health department in Tunis, possibly can.

The two sides of the problem—strengthening world medical research and improving world medical assistance—are intimately linked and could therefore be tackled simultaneously.

It well behooves the United States to take the lead in this program against disease and it is gratifying for us to see considerable efforts devoted to it, which inevitably will be crowned with success.

Mr. M. Essaafi, secretary of this Embassy, will be very glad to assist the health study staff in any manner he possibly can, and I will, in this matter, remain constantly in touch with him, in the hope of bringing a hearty and spontaneous contribution to your great task.

Sincerely yours,

MONGI SLIM, *Ambassador of Tunisia.*

EMBASSY OF THE UNION OF SOUTH AFRICA,
Washington, D.C., August 19, 1959.

DEAR SENATOR HUMPHREY: With your letter of March 20 you kindly sent me details about the special study on international health cooperation which is being conducted by the Committee on Government Operations, and in my letter of April 3 I mentioned that I was inquiring into the position in South Africa.

I have now heard that the matter has been under active consideration in South Africa and that full information has been sent to you by the South Africa Department of Health through the American Embassy.

I may mention that my Government favors the principle of international cooperation for the improvement of health among the peoples of the world, particularly in the underdeveloped countries.

Yours sincerely,

W. C. DU PLESSIS, *Ambassador.*

EMBASSY OF URUGUAY,
Washington, D.C., March 31, 1959.

DEAR MR. SENATOR: Many thanks indeed for your letter dated March 20, concerning the interesting work you have been carrying out in the field of world medical research and assistance.

I have no doubt that the medical authorities in Uruguay, with whom you have corresponded, will have assured you of their enthusiastic support for your fine project, which I feel is destined to contribute greatly to the general welfare and, yet more, to world peace.

* * * * * * *

Wishing you a great deal of success, believe me,

Sincerely yours,

JULIO A. LACARTE, *Ambassador.*

EMBAJADA DE VENEZUELA,
Washington, D.C., April 6, 1959.

My DEAR SENATOR HUMPHREY: * * *

* * * * * * *

This mission is very interested in the project which it considers of great importance to the welfare of millions of human beings.

The publication, "The Status of World Health," which you kindly sent to me together with your letter, reveals the magnitude of the problem of sickness in the world and the need to multiply the efforts that are being made to solve it. I definitely agree with your statement that "Money for medicine is far more meaningful to mankind than simply more money for machineguns."

I believe that you and the members of your subcommittee deserve the highest praise for what they have accomplished.

I thank you for your kind invitation for a member of the Embassy staff to be in touch with your health study staff and have designated Dr. Rafael Armando Rojas, Minister Counselor, who will be very pleased to contact you and your project director, Mr. Julius Cahn.

With the assurances of my high esteem, I am,

Sincerely yours,

MARCOS FALCÓN-BRICEÑO, *Ambassador of Venezuela.*

EMBASSY OF VIETNAM,
Washington, D.C., March 30, 1959.

DEAR SENATOR HUMPHREY: * * *

* * * * * * *

Please accept my most sincere wishes for the success of your noble undertaking of promoting international cooperation in the field of medical research and assistance.

This cooperation is indeed most helpful, as is illustrated by two recent facts concerning Vietnam:

1. As you may know, the region of Saigon-Cholon has over 2 million inhabitants because of the influx of refugees and is at least as warm all year round as Washington is at the height of summer. It has been suffering for years, however, from an insufficient water supply, and the water has to be cut off for many hours each day. This situation is particularly unpleasant, hard, and unhealthy, especially for poor people who cannot afford to have private reservoirs. An improved water supply system has been projected and is going to be built thanks to a loan of $19.5 million which has just been authorized by the Development Loan Fund.

2. Thanks to the private initiative of "Medico" and to the help of the ICA, a small team of American surgeons and nurses is leaving this week for Saigon to help train Vietnamese specialists in lung surgery.

* * * * * * *

I shall be most pleased indeed if I can be of any help.

Sincerely yours,

TRAN VAN CHUONG, *Ambassador of Vietnam.*

THE EMBASSY OF YUGOSLAVIA,
Washington, D.C., April 3, 1959.

DEAR SENATOR HUMPHREY: Thank you very much for your kind letter of March 20, 1959, containing the latest committee print on the "Status of World Health" along with a press release March 20, 1959, referring to a special study on the international cooperation in the medical field, carried out by your subcommittee.

I sincerely appreciate the work in this field and let me please assure you of my high esteem of this important topic of health cooperation.

May I advise you that Mr. Anto Topali, first secretary of this Embassy, will take great pleasure to be in touch with Mr. Julius Cahn, your project director, on the matter concerned.

Very truly yours,

MARKO NIKEZIC, *Ambassador.*

COMMENTS BY THE KING OF THAILAND

Senator HUMPHREY. Another reaction from a foreign nation to the U.S. program of medical research and assistance follows in the form of a statement which was made by His Majesty, King Bhumibol Adulyadej of Thailand, on the occasion of the dedication of the new building for the laboratory of the Division of Biologics Standards, National Institutes of Health, in Bethesda, Md. This eloquent address confirms anew the deep and favorable impression in the eyes of peoples throughout the world—from the highest authorities to the man in the street and in the countryside—on the significance of U.S. efforts in international medical cooperation.

The address follows.

REMARKS BY HIS MAJESTY, THE KING OF THAILAND, AT THE NATIONAL INSTITUTES OF HEALTH, BETHESDA, MD., JUNE 30, 1960

Mr. Secretary, ladies and gentlemen, it gives me much pleasure to be able to take part in this dedication ceremony. This pleasure is all the greater when I think of the humanitarian objectives of the National Institutes of Health.

The institutes are in fact waging a war, a hot war and not a cold one—a war against disease waged for the benefit of all mankind. The laboratory of the biologics standards, which is being dedicated today, constitutes another powerful arm for use in that noble struggle. Let us therefore congratulate the institutes upon their acquisition of this additional modern weapon.

Mr. Secretary, when I accepted your thoughtful invitation, I was reminded of a saying of the Lord Buddha which, freely translated, means: "Freedom from disease is the first blessing." And so in my own country, we also do all we can to fight against disease. But, with so many demands upon the public purse, we have not until fairly recently been able to do a great deal either by way of prevention or cure.

However, it is fortunate that medical science recognizes no national boundary; and human endeavor knows no artificial bounds. International cooperation in the fight against disease has now prevailed for many years.

It was soon after World War I that my father, H. R. H. Prince Mahidol of Songkhla, invited the Rockefeller Foundation to assist in the development of public health and medical facilities in my country. Thanks to the foundation,

these two services were placed upon a broad basis. The aid and technical cooperation initiated by that noble institution is now being carried on by the International Cooperation Administration of the U.S. Government and by international organizations. Much has now been effected toward the eradication of malaria, the control of yaws, leprosy, tuberculosis, and other endemic diseases.

Upon the recent outbreak of a cholera epidemic, my country was the grateful recipient of substantial assistance from foreign governments and the Red Cross societies. When epidemics or other catastrophes strike other countries, we in our turn are glad to take part in international action in aid of the unfortunate.

I would now like to express a thought regarding the Public Health Services. Their work differs from many other activities because it is not apparent to the eye and cannot be measured by statistics. For instance, success in producing any article may be proved by the increased units that have been produced. But success in the prevention of disease cannot be shown by impressive figures. Statistics are not kept of people who do not get ill. Such persons do not think of the dedicated men to whom they owe their health. This constitutes a great test of characer for the public health workers. But I am sure they will not be discouraged and will strive even more in their great work for the benefit of mankind.

Ladies and gentlemen, let us congratulate the National Institutes of Health for the splendid work they have already done and wish the Division of Biologics Standards even greater success in its labors as pioneers in the fight for humanity.

2. FOREIGN NATIONS' ACTIVITIES AND EXPENDITURES IN INTERNATIONAL MEDICAL RESEARCH AND ASSISTANCE

Senator HUMPHREY. Information is presented within this section which may help in answering the following types of questions in which our subcommittee is interested:

1. To what extent are foreign nations carrying out programs of international medical research?

2. To what extent are they engaged in medical assistance beyond their own borders?

3. What appear to be some of the problems and opportunities of strengthening collaboration among the various nations in these two fields?

The reason for this section is clear. The taxpayers of the United States are supporting international medical work through their hard-earned savings.

These logical questions naturally arise:

Who else is helping to carry the load of health activity abroad?

What is the relationship between the work which our U.S. tax funds are supporting and the work which the tax funds of other foreign nations may be supporting?

Moreover, what are the recipient nations doing for themselves?

NEED FOR MORE DATA

The subcommittee would, of course, not wish to intrude in any way upon the domestic prerogatives of the various foreign nations. At the same time, I believe that it would serve the cause of world health if more information were generally available as to who is doing what, where and at what expense.

In part I of our hearings (pp. 114–115), it will be recalled that I had asked Dr. James Shannon, Director of NIH, whether he was familiar with the extent to which various foreign governments now support medical research programs. Dr. Shannon reported that despite

diligent effort on the part of NIH, it had not been able to gather very much information along this line.

Unfortunately, the subcommittee has likewise found it difficult to collect more than fragmentary information of this nature. Nevertheless, we have gathered some material which we believe is pertinent and which might, in the future, be supplemented by a complete WHO report, if the various nations so directed.

Most of this information concerns medical research—which is the main focus of this particular volume. Often, however, it is somewhat difficult to distinguish in foreign publications between their data on medical assistance and on medical research. Therefore, considerable information is contained herein on the assistance phase as well.

I. United Kingdom

I believe that it might be universally agreed that, outside the United States, no nation has been more active in contributing financially to international medical research than has the United Kingdom—both from within its own borders and abroad. Man for man, the scientists of England, Scotland, and Wales yield to no one in the fruitfulness of their discoveries.

Moreover, in international medical assistance, as well, the United Kingdom has been exceedingly active—both publicly and through the activities of her private citizens. British medical assistance like our own, has been extended through bilateral and through multilateral channels, e.g., WHO, Colombo plan, etc.

A. MEDICAL RESEARCH

We may first turn to the medical research phase.

The fact becomes quickly apparent that we have a great deal to learn from English medical science—just as we have a great deal to learn in many other areas of science.

The reports of the United Kingdom Medical Research Council are both complete and impressive.

This subcommittee has obtained these reports from Sir Harold P. Himsworth, secretary of the council, the able scientist to whom I refer hereafter on page 714. In addition, we have obtained supplementary information through the courtesy of Sir Harold Caccia, British Ambassador to the United States, and Mr. E. S. Hiscocks, Director of the United Kingdom Scientific Mission in Washington. The documentation which we have assembled on the work of British laboratories is, however, already so comparatively available within the English-speaking nations that it does not need detailed presentation here. NIH scientists, in particular, have the closest of relations with their colleagues in the United Kingdom and esteem them highly.

One phase which may not be generally understood here in the United States, because it is so comparatively new, concerns the current organization of overall British scientific effort. To help clarify this important subject, I am reprinting excerpts from a report entitled "Promotion of the Sciences in the United Kingdom," published by the Reference Division, Central Office of Information, London, November 1959.

These excerpts cover three headings:

(*a*) the work of the Medical Research Council;
(*b*) the work of the Ministry of Health;
(*c*) the organization of scientific liaison overseas.

This last-named phase is of special interest to this subcommittee, since we are exploring how the U.S. Government organizes its own scientific work overseas. We should try to learn as much as we can, therefore, about how other nations, such as the U.K., approach this difficult problem.

EXCERPTS FROM REPORT, "PROMOTION OF THE SCIENCES IN THE UNITED KINGDOM," PAGES 7–10, 15–20

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MINISTERIAL RESPONSIBILITY FOR CIVIL SCIENTIFIC RESEARCH

Responsibility for Government scientific organizations was altered as part of the Governmental changes in October 1959.

The Lord Privy Seal (a traditional Office within the Cabinet without departmental functions), as Minister for Science, is now responsible, instead of the Lord President, to Parliament for the Council for Scientific and Industrial Research, the Medical Research Council, the Agricultural Research Council, the Overseas Research Council and the Nature Conservancy, and is chairman of the five Privy Council committees to which they report. The Minister for Science also exercises ministerial functions under the Atomic Energy Acts, and general supervision over the program of space research at present being devised under the direction of a Steering Group * * *.

Other ministers remain responsible for the scientific establishments within their own departments. But the Minister of Science is responsible for broad questions of scientific policy outside the sphere of defense and is advised by the Advisory Council on Scientific Policy on general questions which relate to the whole field of civil science.

The administrative staffs comprising the former Office of the Lord President of the Council and the Atomic Energy Office have been merged into a single Office of the Minister for Science, with a general division (corresponding to the former) and an atomic energy division (corresponding to the latter).

THE ADVISORY COUNCIL ON SCIENTIFIC POLICY

The 15 members of the Advisory Council on Scientific Policy, who are appointed by the Lord President, include eminent scientists drawn from the universities, industry and Government service.

In order to give adequate attention to each of the subjects within its wide range of interest, the Advisory Council has established the following standing committees:

the Committee on Scientific Manpower;
the Scientific Library and Technical Information Committee; and
the Committee on Overseas Scientific Relations.

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH

The DSIR is responsible to the Committee of the Privy Council for Scientific and Industrial Research. It is governed by a Council for Scientific and Industrial Research, known as the Research Council, which, under the Department of Scientific and Industrial Research Act, 1956, replaced the former Advisory Council.

The Research Council consists of as many members as may be determined by the Lord Privy Seal and Minister for Science; in 1959, it had a chairman and 11 members. It is charged with the organization, development and encouragement of scientific and industrial research and with the dissemination of the results of such research. In particular, it may—

(1) encourage and support scientific research in universities, technical colleges and other institutions;

(2) establish or develop institutions or departments of institutions for investigation and research relating to the advancement of trade and industry; and

(3) take steps to further the practical application of the results of scientific and industrial research.

These functions are discharged through 14 national research organizations under the Research Council's own control and direction and financed from its own Vote, and one, the Joint Fire Research Organization, which is maintained by the DSIR and the Fire Offices' Committee; and through the autonomous research associations. The council also makes grants for these purposes and for postgraduate instruction in science and technology to individual workers and to institutions.

Since DSIR was set up, technological changes have necessitated a measure of reorganization. Science-based industries, such as the chemical and electrical industries, have matured and prospered; entirely new industries, such as electronics, plastics, synthetic fibers and synthetic rubber industries, have emerged. Industry, for its own purposes and on behalf of the Government, has become the largest employer of research workers. Organized teamwork has increasingly replaced individual effort in scientific research, leading to a demand for trained research workers who can both specialize and cooperate with colleagues trained in other subjects, and also for men of outstanding qualities to direct large research departments. Research projects, at the same time, have become increasingly expensive and have to be selected with more care.

The Research Council has therefore, since its appointment in November 1956, kept under review the organization of DSIR and has announced a number of specific changes. From January 1958, the Timber Development Association (grant-aided by DSIR but otherwise financed by timber importers and others) assumed responsibility for certain work previously undertaken by the Forest Products Research Laboratory of DSIR, so that the latter might concentrate more on research leading to new developments. In July 1959, the Agricultural Research Council took over DSIR's food laboratories (the Low Temperature Research Station, the Ditton Laboratory, and the Pest Infestation Laboratory) in the interests of a better coordination of work.

A new laboratory, the Warren Spring Laboratory, was officially opened at Stevenage, Hertfordshire, in June 1959. In view of the research now done by the fuel and power industries, the new research station, insofar as it continues fuel research, will concentrate on the study of atmospheric pollution and of the synthesis of oil and chemicals from carbon monoxide and hydrogen. It will also conduct research on mineral processing and on subjects (including those requiring pilot scale investigations) which are not covered by other DSIR laboratories.

The council has also set up ad hoc committees to review the work of the National Physical Laboratory, and the recently renamed laboratories, the National Chemical Laboratory (formerly the Chemical Research Laboratory) and the National Engineering Laboratory (formerly the Mechanical Engineering Research Laboratory). Two other committees have been set up: a Human Sciences Committee to study especially the human aspects of equipment design and problems of training and human relations in industry; and an Economics Committee to apply economic criteria in framing DSIR's scientific research policy, and to study the economic implications of such research.

In August 1958, the Research Council announced that small steering committees, the chairmen of which are members of the council, had been set up to take responsibility for the research programmes of two of its laboratories, the new Warren Spring Laboratory at Stevenage and the National Chemical Laboratory at Teddington, Middlesex. Subsequently, two other steering committees were set up to assume responsibility for the fish research programme of the Torry Research Station, Aberdeen, and for the work of the National Engineering Laboratory, East Kilbride, near Glasgow.

In April 1959, responsibility for the Tropical Products Institute was transferred from the Secretary of State for the Colonies to the Lord President of the Council, and the institute became one of the DSIR research stations. The primary object of the change was to make the services of the institute available to countries which have achieved independence and no longer come within the scope of the Colonial Office.

In July 1959, responsibility for the Laboratory of the Government Chemist was transferred from the Treasury to the Lord President of the Council, and it

became another of the DSIR establishments. The laboratory provides a wide variety of analytical, investigatory, and advisory services to all Government departments that request them, and has a statutory function as official analyst and as an adjudicator in cases of disputed analyses. In addition, it undertakes research in various fields, including the development of chemical and physical methods of analysis.

The DSIR is expanding its activities under a second five-year plan for the years 1959–64; expenditure—at £61 million—will be nearly double that of £36 million under the first five-year plan 1954–59. Expansion will continue steadily throughout the period, and for the year 1963–64 is planned to reach £14 million. The largest increase will be in scientific research grants to universities. Post-graduate awards to students will be increased by about 10 percent each year until, in 1963–64, it is hoped that some 3,800 students will be receiving DSIR grants for research training. In the same year, DSIR support for special research in universities should reach about £1.75 million a year. Expansion of staff in the DSIR's own laboratories is to proceed at the rate of about 6 percent a year. Grants to the 50 research associations in the DSIR scheme will be increased to over £2 million a year by 1964. The Research Council will continue its policy of encouraging industry to bear an increasing proportion of the total cost. The actual expansion of the research association movement will thus probably be proportionately greater than the increase in the Government grant. It has also been decided to devote much more attention and money to ensure that the results of research are known and applied * * *.

MEDICAL RESEARCH COUNCIL

The Medical Research Council (MRC), the successor of the Medical Research Committee, was incorporated under its present title by Royal Charter in 1920.

The MRC is responsible to the Committee of the Privy Council for Medical Research, of which the Lord Privy Seal and Minister for Science is chairman and the Secretaries of State for the Home Department, Scotland, Commonwealth Relations, and the Colonies, and the Ministers of Health and of Labour and National Service are members.

The members of the MRC, appointed by the Committee of the Privy Council for Medical Research for a period normally of four years, are twelve in number. Nine members, representing different branches of medical knowledge and the fundamental sciences on which these are based, are appointed after consultation with the President of the Royal Society and with the MRC itself; on retirement, these scientific members are not eligible for immediate reappointment. Of the three lay members of the council, one must be a member of the House of Lords and one a member of the House of Commons.

The MRC's chief function is to promote scientific investigations to obtain new knowledge likely to be of value in the field of curative and preventive medicine. In planning and carrying out its research programme, the council is often assisted by special committees appointed to advise on particular subjects. Its arrangements for the support of research fall under three main headings:

(1) investigations by members of the council's scientific staff, mostly working in the council's own research establishments;

(2) temporary research grants to independent investigators in universities and elsewhere; and

(3) research fellowships and scholarships for tenure both at home and abroad.

The National Institute for Medical Research, at Mill Hill and Hampstead, London, is the council's main research establishment; in addition, there are some 70 smaller establishments, generally known as research units or groups, which are attached in most cases to universities and hospitals in the United Kingdom. The council also undertakes work overseas and, with additional support from colonial development and welfare funds, maintains laboratories in the Gambia and units in Uganda and Jamaica.

The MRC administers the Public Health Laboratory Service on behalf of the Ministry of Health.

AGRICULTURAL RESEARCH COUNCIL

The Agricultural Research Council (ARC) was established by Royal Charter in 1931. It is responsible to the Committee of the Privy Council for Agricultural Research, consisting of the Lord Privy Seal and Minister for Science, the

Minister of Agriculture, Fisheries and Food, and the Secretary of State for Scotland.

Under the Agricultural Research Act, 1956, the ARC was charged with the organisation and development of agricultural research, and an Agricultural Research Fund was established, into which are paid the parliamentary grant-in-aid and other sums received by the council, and out of which are met all expenses incurred by the council under the Act or in accordance with the terms of its charter. The accounts of the fund are audited by the Comptroller and Auditor General.

The council consists of not more than 18 nor fewer than 15 members, five of whom are appointed for their general experience of and interest in agriculture. Others are appointed by the Committee of the Privy Council, after consultation with the President of the Royal Society, on account of their qualifications in one or other of the sciences relating to agriculture. Included in the council's membership are the Chief Scientific Adviser (Agriculture) and the Chief Veterinary Officer of the Ministry of Agriculture, Fisheries and Food, also one member appointed by the Minister of Agriculture, Fisheries and Food and one by the Secretary of State for Scotland. The council has 23 research stations and units under its direct control in Great Britain, including three laboratories, concerned with the preservation, storage and protection of foodstuffs, transferred from the DSIR on 1st July 1959, when the ARC assumed responsibility for Government research on food (other than fish).

It is also responsible for the financing of the independent research institutes in England and Wales (but not in Scotland). The programmes of all these institutes are coordinated and approved by the council and are integrated with those of the independent research institutes in Scotland, which are grant-aided by the Department of Agriculture for Scotland.

The council makes grants to universities and other recognized research institutions for special investigations, and awards research fellowships and post-graduate studentships in agricultural and veterinary science, agricultural and dairy engineering and statistics.

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Medicine and Health

In addition to the work carried on under the aegis of the Medical Research Council, the Ministry of Health may conduct and promote research into the cause, prevention and treatment of illness.

The Department of Health for Scotland has similar responsiblities, in the discharge of which it is advised by its Advisory Committee on Medical Research; liaison with the Medical Research Council is also maintained.

In Northern Ireland, the Hospitals Authority (a statutory body set up by the Minister of Health and Local Government) has power to conduct or assist medical research. In addition, it has a statutory duty to provide adequate bacteriological and pathological services.

The General Register Office carries out research in four main fields: (1) analysis and interpretation of statistics of causes of death; (2) statistical inquiry into the treatment of cancer and its results; (3) morbidity as revealed in hospital statistics; and (4) mental health.

Colonial Research

The bulk of the research work relating to colonial development is done in the colonial territories, but much of it requires close collaboration with research institutes and laboratories in Britain. A research council coordinates the work of specialist committees and advises on general questions of policy, particularly on the allocation of the funds made available to help research under the Colonial Development and Welfare Acts. Specialist bodies deal with research into such subjects as agriculture, animal health, forestry, medicine, social service and colonial products.

Anti-Locust Research

An example of Britain's research work on behalf of colonial territories is provided by the Anti-Locust Research Centre in London, which has been internationally recognised as a world centre for locust research since 1931. This organisation receives and coordinates information on locust movements and breeding from some 40 countries, undertakes scientific research into the life history and habits of the different species of locust, and investigates and develops methods for their control and destruction. In cooperation with the

United Nations Food and Agriculture Organisation (FAO), it provides an information service on the movements of desert locusts and provides forecasts of swarm movements which are distributed to the countries threatened.

Other Research Work

There are a number of scientific institutions administered by Government departments which undertake research work in addition to their other scientific activities. These include the Royal Botanic Gardens (Kew), which celebrated its bicentenary in June 1959, and the Ordnance Survey Department, both now administered by the Ministry of Agriculture, Fisheries and Food.

The three research departments at the Royal Botanic Gardens, Kew, are: the Herbarium, concerned primarily with the classification and accurate determination of plants; the Jodrell Laboratory, for the study of plant anatomy and plant physiology; and the Museum of Economic Botany, dealing with the economic exploitation of plants. The library, attached to the herbarium, was founded in 1853; it consists of more than 55,000 botanical books, about 80,000 reprints and separately issued items and a valuable collection of over 150,000 drawings and paintings of plants.

The Ordnance Survey Department was founded in 1791 to prepare a map of Great Britain mainly for defence purposes. Its present work is chiefly civil in character.

SCIENTIFIC MUSEUMS

The British Museum (Natural History)—an independent section of the British Museum—contains one of the world's largest collections of natural history material and is recognised as a leading research institution.

The Science Museum illustrates the development of pure and applied science in all countries, but chiefly in Great Britain which has always held a leading place in engineering, agriculture, navigation, mining, aeronautics, and in the development of industrial machinery and processes, all of which are represented in the museum's collections.

The geology of Britain is known in more exact detail than that of any other country in the world, and the Geological Survey (since 1919 an establishment of DSIR), responsible for this work, has an outstanding collection of exhibits in its Geological Museum.

These three museums are in South Kensington, London.

Important collections outside London are the Museum of Science and Industry, in Birmingham, and the Museum of the History of Science, at Oxford.

THE PARLIAMENTARY AND SCIENTIFIC COMMITTEE

The Parliamentary and Scientific Committee was founded at the end of 1939 by members of the House of Commons and replaced the former Parliamentary Science Committee. It is one of a number of informal, unofficial, all-party parliamentary groups which have grown up spontaneously and have varying degrees of influence. Membership is open to members of Parliament of any party in both Houses, and also to nominated representatives of such nonprofit-making scientific and technological organisations in Britain as may be affiliated under its constitution. Membership in 1959 comprised 185 members of Parliament and representatives of 105 scientific and technological institutions.

The committee provides, as far as possible, for a regular exchange of information between members of Parliament and scientists, and endeavours to ensure that action is taken to correct matters seen to be wrong in the light of such information.

SCIENTIFIC LIAISON OVERSEAS

The history of scientific progress is essentially a story involving many nations; the organisation of a country's scientific research would, therefore, be incomplete without provision for adequate liaison with other countries.

Before the second world war, international scientific collaboration took place through the exchange of university staffs, the awards of scholarships and fellowships, the close relations existing between the learned societies in Britain and their equivalent bodies abroad, and through international conferences and congresses.

The war and the postwar period saw the emergence of a number of new developments in overseas scientific collaboration, including the exchange of scientific information. Well-known examples are the specialized agencies of the United

Nations Organisation, e.g., the United Nations Educational, Scientific and Cultural Organisation, the World Health Organisation, the Food and Agriculture Organisation, and those concerned with nuclear energy, e.g., the International Atomic Energy Agency, the European Organisation for Nuclear Research (CERN) and the European Nuclear Energy Agency, in all of which the United Kingdom is playing a full part. The United Kingdom is also represented on the Governing Committee for Scientific and Technical Personnel of the Organisation for European Economic Cooperation (OEEC) and on the Science Committee of the North Atlantic Treaty Organisation (NATO), and collaborates bilaterally with a number of countries in nuclear energy. Besides agreements between the respective atomic energy authorities, there are inter-Governmental agreements with six countries, including the United States, with which collaboration is now particularly close. There are permanent representatives of the United States Atomic Energy Commission in London and of the UKAEA in Washington. Controlled thermonuclear (fusion) reactions and nuclear marine propulsion are two important subjects on which there are regular discussions and exchanges of experts.

Among the various channels through which scientific liaison is conducted are:

The British Commonwealth Scientific Offices.—A feature of the wartime pattern of scientific collaboration was the establishment of scientific missions, in London by the United States and the Commonwealth countries, and in Washington by the United Kingdom and the other Commonwealth countries; the latter subsequently joined together as the British Commonwealth Scientific Office in Washington. Since 1948 the scientific offices in London of the Commonwealth countries, set up after the war, have been located in the same building, and are closely associated with the Overseas Liaison Division of the DSIR.

The Standing Committee on Overseas Scientific Relations.—This is a committee of the Advisory Council on Scientific Policy which was set up after the war to consider and advise on United Kingdom Government policy on matters of overseas scientific relations. In view of the Government's increasing interest in international organisation for scientific cooperation, the committee was reconstituted in 1958 as a small committee concerned primarily with questions of policy and scientific cooperation. The chairman of the Advisory Council on Scientific Policy acts as its chairman, and its secretariat is provided jointly by the Office of the Minister for Science and the Overseas Liaison Division of the DSIR.

The Overseas Liaison Division of the DSIR.—This division, in addition to its executive work for the Committee on Overseas Scientific Relations, is also responsible for the administration of the United Kingdom scientific missions in Washington and Bonn, the offices of the scientific attachés in Paris, Stockholm and Moscow (the latter was appointed in April 1959), and of any further posts which may be created, and for ensuring that information collected by them is effectively disseminated in the United Kingdom. Both the missions and attachés and the overseas liaison division itself have interdepartmental responsibilities, although the division is placed within the DSIR for convenience of organisation.

Commonwealth Agricultural Bureaux.—Machinery exists in the Commonwealth Agricultural Bureaux for liaison in the field of agricultural science between countries of the Commonwealth. In the United Kingdom there are ten bureaux, specialising in various branches of agricultural science, and two institutes—the Commonwealth Mycological Institute and the Commonwealth Institute of Entomology. A third institute, the Commonwealth Institute of Biological Control, has its headquarters in Ottawa, Canada. The bureaux collect, collate and disseminate information resulting from agricultural research.

The British Council.—The aims of the British Council in the pure and applied sciences are to foster closer cooperation between British scientists and scientists of other countries, and to promote a better understanding of Britain among overseas specialists by disseminating a knowledge of British activities and achievements. Under the first objective the exchange of visits between scientists in the United Kingdom and other countries is of prime importance. Besides arranging lecture or advisory tours overseas by eminent British scientists, the British Council, among many activities of a similar nature, brings to the United Kingdom every year a number of senior overseas specialists, postgraduate students and technologists on visits of varying duration, for the purpose of study in British universities and other institutions, or for discussion with British experts. In addition to publishing the British Medical Bulletin, intended primarily to keep overseas specialists informed of progress in medical research

in Britain, the council maintains an extensive and much used specialist information service. In some 70 countries in which the British Council is represented, libraries are maintained and in many instances these have strong sections of scientific and technological literature.

The British Council maintains at its headquarters specialist departments for medicine and science (including agriculture and engineering), while in some countries scientists are attached to its overseas representatives The British Council is advised by eminent scientists who serve on its Science Advisory Committee and on specialist panels for the different subjects.

Overseas Research Council.—The Government established the Overseas Research Council in July 1959. The Council is under the general control of a Committee of the Privy Council and its principal functions will be to formulate policy in respect of scientific research for overseas, and to coordinate advice and assistance on research matters provided by the United Kingdom research councils. Matters concerning scientific development in United Kingdom dependencies, in Commonwealth countries and in countries outside the Commonwealth can be referred to it. The council thus provides a central point to which Commonwealth Governments and research institutions can refer for advice and information, and avises generally on United Kingdom cooperation in scientific research overseas.

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EXPENDITURE ON RESEARCH AND DEVELOPMENT

A review of the pattern of the research and development effort in Great Britain, published in the report of the Advisory Council on Scientific Policy for 1956–57, Cmnd. 278, indicated that in the year 1955–56 Britain spent about £300 million on research and development (though this figure is subject to a margin of error). Of the total expenditure, some £185 million, or 62 percent, was spent by private industry, mainly on Government account. Nationalised industries were estimated to have spent £4 million.

The survey also showed that, according to the most reliable estimate available, about 46,600 professionally qualified scientists and engineers were engaged on research and development in the United Kingdom, including about 2,200 research workers in agriculture and medicine. About half of these are employed by private industry and slightly more than one-tenth by the defence departments.

These estimates, insofar as they concerned industry, were based on the preliminary results of an inquiry conducted by DSIR, a description of which, with final results, was published by DSIR in December 1958. The largest expenditure was by the following industries: aircraft (44 percent), electrical engineering (18 percent), chemicals (13 percent) and shipbuilding (8 percent).

COMMUNICATING RESULTS OF RESEARCH

The dissemination of the results of research to other research workers and to ultimate users has become a problem of some magnitude as the volume of information has grown. It is necessary, therefore, to supplement the methods generally in use—publication in learned and specialized journals, abstracting services, exhibitions, conferences, press, radio and television—by more extensive measures.

The DSIR devotes approximately a quarter of its resources to information services. The Information Division at DSIR headquarters in London supplements the information work done at its research establishments and promotes information activities of various kinds. The Lending Library Unit in London (LLU), added to these services since 1957, will be the nucleus of a new National Lending Library for Science and Technology, which is to be set up at Thorp Arch, near Boston Spa, Yorkshire, in 1961. The new library will cover all subjects in science and technology other than some branches in medicine; it will also take over responsibility for the lending service now provided by the Science Museum Library. Another important activity is an increase in translations of Russian scientific literature. A new LLU Translations Bulletin, the first issue of which appeared in January 1959, contains lists of books, journals, and other scientific papers which are now available or which are to be translated in the near future. The LLU collaborates with the National Science Foundation of the United States, and it holds microfilm copies of that organisation's translations of Russian scientific literature which may be borrowed. The LLU has also started to collect Chinese scientific literature.

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The Association of Special Libraries and Information Bureaux (ASLIB) runs a technical information department and maintains a Commonwealth index of translations and a panel of 135 translators. The Commonwealth Agricultural Bureaux provide abstracts and an information service for agricultural science. The Agricultural Research Council publishes an Index of Agricultural Research in Progress, and in its annual reports gives accounts of developments in current research.

SELF-APPRAISAL OF BRITISH MEDICAL RESEARCH

Senator HUMPHREY. In the subcommittee's scanning of the medical journals of the world, it has always found invaluable guidance in the famed British periodical, The Lancet.

Before concluding with this phase of United Kingdom endeavor in medical research, therefore, I believe that it would be pertinent to quote from the following self-appraisal, so to speak, which appeared in The Lancet. This was in an issue published a month after our own international health study commenced. It concerned the challenge to United Kingdom research, as this distinguished periodical viewed it, in terms of levels of financial support and other factors.

[The Lancet, London, Sept. 27, 1958]

RESOURCES FOR RESEARCH

Those who visit American medical schools are impressed by the amount of money at their disposal for medical research. Last year the grant from Federal funds alone was $186 million; industry contributed $90 million; charitable foundations earmarked $35 million for specific projects; and further substantial sums came from local collections (e.g., "Heart Sunday") and sums allotted by individual States to their universities. The municipality of New York has just set up its own health research council with an initial appropriation of $600,000 and a possible eventual budget of $8 million a year. Congress has now been told by a special committee that it is not putting enough money into medical research and that $1 billion annually should be spent by 1970.[1] Yet already Congress is putting into research 20 times the budget of our Medical Research Council. This vast endeavor is exemplified in the National Institutes of Health at Bethesda with 6,000 medical and ancillary staff. In the United States all avenues into medical research are wide open, and there are splendid facilities even at the student stage. Hospital consultant staffs are far larger than ours, and at every grade each member is expected to contribute actively to the development of ideas in medicine. Dr. Smythies' article on page 689 of this issue graphically underlines the prominence of search in American thought. In our more strictly selective system, necessitated by relative poverty of money and facilities, many American investigators would hardly have had a chance. By full development of their talent, and by the efforts of great numbers, an immensely rich soil is being developed from which new research ideas can be harvested.

When new scientific approaches originate in this country they may be elaborated all too slowly by "one man and a boy" working in cramped space with makeshift equipment, whereas in the United States large teams at once get to work on every promising idea. Consequently we have depended on the United States for the development of new antibiotics; and to the United States, too, must go full credit for most of the progress in protection against poliomyelitis. These are advances well known to the man in the street, but far more important is the ferment of new biological ideas from which other discoveries will spring. Fundamental biological and physiological science in the United States is closely integrated with clinical research, and extensive laboratories are available not only to the basic medical scientists but also to clinicians for studying problems arising out of human disease. By contrast, medical research in this country is undergoing relative attrition despite an expanding economy. In the universities new building for medical and biological sciences is much more restricted than that for physical and technological subjects. There is no surgical animal re-

[1] New York Times, July 14, 1958.

search laboratory in any English university—though one is now nearing completion. There have been no new teaching hospitals in this country since the 1939–45 war; so even the application of the new methods developed here or elsewhere is frustrated or difficult. Careers in basic medical science have become unattractive in salary and prospects compared to the glamour of consultant medicine—once achieved. The young clinical trainee who engages in research is often terrified that he will thereby become labeled a "laboratory man" (derogatory only in this country) or too specialized for the next vacancy in a provincial hospital. The real gravity of our situation is underlined by the fact that some of our research directors and medical professors, as well as promising younger investigators, are leaving this country to work on the other side of the Atlantic, where they find that, in their laboratory and investigative work, they are given encouragement, lavish support, and almost unlimited opportunity. This is happening even though adaptation to the American way of life may be none too easy for the expatriate of mature years.

We may claim that, because of the very restriction of opportunities, there is a more concentrated selection of ability in British medicine—that in American medical research, as in the American economy, there is much waste. Our professional leaders are in fact very highly selected, but if the scientific training of our young men continues to be discouraged our leaders will be selected from a dwindling field of applicants. Already our medical faculties often find great difficulty in filling their professional chairs. We justly pride ourselves that under the NHS there are more specialists than ever before; but we should not pretend that this growth in specialist services will by itself keep British medicine in the forefront. We cannot maintain our standards without the vigorous pursuit of research in our medical schools, for even good routine will decline without the stimulus of critical thought engendered by investigative work. Scholarship alone—meaning the study of other people's thoughts—can never keep a profession alive. It failed in the Middle Ages and it would fail again now.

With our smaller population and national income we naturally cannot spend as much money on research as the United States. But we could with advantage spend more than we do, and we should make sure that our resources are used with imagination. Poverty need not make us too despondent, or proud, to learn from the American system such useful lessons as the encouragement of research among all branches of the profession, including students. The clinical prizes offered by some regional hospital boards and the more ambitious studies being made by the College of General Practitioners recognize this need. Again, though we cannot compete with the generosity of American industry and trusts, we could perhaps foster a new age of patronage. Lord Nuffield has already shown us the way; two of the royal colleges have lately received princely gifts for research; and the mental health research fund, which supports some investigations into the problems Dr. Smythies mentions, offers an opportunity for ordinary citizens to make small contributions.

Our Commonwealth links no longer depend on the strength of our military force, but on our scientific, cultural, and commercial leadership. (Many of us can remember the uplift to the national pride and prestige of Canada which followed the discovery of insulin.) Supported by the basic disciplines of physiology, biochemistry, and microbiology, which in turn utilize techniques of physics and chemistry, medical science is a part of general science. Progress is one science inevitably impinges on all associated branches. Uneven progress of science is impossible, and thus the present policy of preferential development of the physical sciences seems to be utterly faulty. In the U.S.S.R., where the academician holds the highest place in society, there are signs of an intensified application of basic sciences to medical problems. In this country we have no lack of talent; but without more financial encouragement, more laboratories, and more facilities for research, we shall lose our best workers, and gradually the standards of medicine even at a practical level will decine.

B. MEDICAL ASSISTANCE

Senator HUMPHREY. In British medical assistance overseas, a key authority is the Colonial Advisory Medical Committee of the Colonial Office. This is the parallel body to the Colonial Research Committee on the research side.

Official Grants and Loans

Useful information from the Colonial Office is contained in bulletins entitled "Colonial Development and Welfare Acts," cmd 672 and 240, published respectively in February 1959 and on June 30, 1959.

In the latter report, on page 36, for example, the following facts are stated under the general title, "Summary of Commitments, from 1st April 1946, of Grants and Loans Approved Under the Colonial Development and Welfare Acts":

For Medical and Health Services, grants to March 31, 1958, were £17,121,896 sterling; from April 1, 1958, to March 31, 1959, £1,594,431 ($2.80 to £1).

Under the categories of research, the following figures are cited on page 37: for medicine, grants to March 31, 1958, £2,753,738; from April 1, 1958, to March 31, 1959, £152,114.

For research on tsetse and trypanosomiasis, to March 31, 1958, £1,652,588 and from April 1, 1958, to March 31, 1959, £18,967. Other sums have been granted for such purposes as research on pesticides, and for research fellowships, etc.

Role of Medical Schools

The medical schools attached to the following Colonial universities and university colleges are also concerned with medical assistance:

University of Hong Kong.
University of Malaya, Singapore.
Royal University of Malta, Valletta.
University College, Ibadan, Nigeria.
University College of East Africa, Kampala, Uganda.
University College of West Indies, Mona, St. Andrew, Jamaica.

The two schools of tropical medicine in the United Kingdom also contribute notably to progress in this field:

London School of Hygiene and Tropical Medicine, London.
Liverpool School of Tropical Medicine, Liverpool.

The shortage of physicians in the emerging areas is a matter of particular significance. We may therefore note that the Inter-University Council for Higher Education in the Colonies plays an important role in meeting this problem. A letter from the council is reprinted herein, as is a letter from the British council.

Nonofficial Contributions

On a less official level there is the Royal Society of Tropical Medicine and Hygiene, London. And, of course, there is a long list of private organizations which are concerned with medical assistance in the colonies.

As we are all aware, voluntarism in the United Kingdom is extremely highly developed, just as in our own land. Voluntarism has always had an important place in both United Kingdom oversea medical research and assistance.

1. LETTER FROM H. F. OXBURY, CONCERNING ACTIVITIES OF THE BRITISH COUNCIL

THE BRITISH COUNCIL,
London, December 21, 1959.

DEAR SENATOR HUMPHREY: I am replying to your letter dated October 27th to the Director-General.

The work of the British Council in medicine is at postgraduate level. Assistance is given to postgraduates from overseas visiting the United Kingdom. This

help usually consists in the making of administrative arrangements on behalf of the individual concerned, but it may include financial assistance in addition. Those who are only making a short visit are put in touch with British colleagues for an exchange of views or demonstration of techniques. Similar assistance is also given to those who wish to stay for some months for further training. Aid is also given in the form of scholarships, covering an academic year, and of bursaries of shorter duration up to a maximum period of six months. Administrative help is, however, given on a much wider scale and programmes of study are arranged not only for British Council scholars, and bursars, but also for a number of postgraduates awarded fellowships by one of the international agencies. (Similarly, in consultation with the Ministry of Health, the Royal College of Nursing, and the Nursing Recruitment Service, the Council annually arranges the placing in British hospitals for initial and further training of approximately 100 student nurses and qualified nurses from selected foreign countries.) Of these some pay their own expenses; others are given grants by their respective governments. Finally, although the Council does not make long-term study arrangements for postgraduates who are financially independent, it is able to refer them to the British Postgraduate Medical Federation who can give them active help. The Council also organises two or three short courses of two weeks' duration each year in specially selected medical subjects. These courses are attended by overseas specialists and senior postgraduates. The subjects covered in 1959 were Anaesthesia, Orthopaedic Surgery, Radioactive Isotopes in Medicine; those for 1960 are Anaesthesia, Cardiac Surgery, Plastic Surgery.

In an outward direction, the Council arranges for a number of eminent British medical specialists to visit overseas countries. These visits are usually made at the request of the countries concerned and enable valuable contacts to be established, together with a free exchange of ideas. Although the Council itself no longer produces any medical films, it views many films derived from other sources and distributes overseas those it considers to have sufficient merit. Medical exhibitions are also sent on tour overseas, one of the most recent being on William Harvey, discoverer of the circulation of the blood.

The Council is also concerned with the recruitment of British medical staff to educational posts overseas. During the past two years such appointments have been negotiated in universities and teaching hospitals in Iran, Iraq, and Turkey.

The Council's medical library supplies bibliographies and information on any subject in the field of medicine and social welfare, and also provides a reprint service. During the financial year 1958/59, 188 bibliographies were prepared and 382 enquiries answered. Reprints, pamphlets and issues of periodicals presented totaled 5,155. Advice on library services in the United Kingdom is given to Council-sponsored visitors, including World Health Organisation Fellows and Colombo Plan Trainees, on arrival in this country. The library publishes monthly the British Medical Book List, whose aim is to make new British medical literature known overseas, and includes Government publications, circulars and memoranda, the reports of research institutions and voluntary societies, as well as books, pamphlets and periodicals.

The Council also publishes a professional journal, the British Medical Bulletin, for medical men and research workers in the basic medical sciences. It is primarily designed for the specialist in the foreign countries in which the Council is represented, but in practice it is used also for undergraduate and postgraduate teaching and reaches most countries in the world. It is available at all Council libraries and offices; is sold at a commercial price, but has also a limited free distribution—for example, in countries with currency difficulties. Each number of the Bulletin, which is published every January, May, and September, consists of a self-contained symposium on one aspect of medical research; the contributions are by leading British workers in the particular subject, and provide well-documented information, including work in progress. The subjects covered in 1959 were Haematology, Blood Groups, Current Virus Research; those for 1960 are Antibiotics in Medicine, The Thyroid Gland, Insulin. The Bulletin has a worldwide distribution. Many examples of special uses of its material arise: for example, the translation and publication—with permission and acknowledgement—of some of its material in foreign journals; in 1959, permission was given to an American blood bank to reprint part of one of the papers in the Blood Groups number for distribution to blood banks in the U.S.A.; copies of the Bulletin are used in the new medical colleges in India.

Yours,

H. F. OXBURY, *Assistant Director-General.*

2. MEMORANDUM FROM INTER-UNIVERSITY COUNCIL FOR HIGHER EDUCATION OVERSEAS ON DEVELOPMENT OF MEDICAL EDUCATION IN THE UNITED KINGDOM DEPENDENCIES

A copy of the Report of the Inter-University Council (1946–54) is enclosed. This is the most recent report available and, while some of the details may now be out of date, it will give the reader an indication of the manner in which the machinery was set up to advise upon the postwar development of higher education in the U.K. dependencies.

The Council at present gives assistance and advice on all relevant educational matters to three Universities and six University Colleges in Commonwealth countries, together with the University of Khartoum in the independent Sudan. Faculties of Medicine are established in six of these nine institutions: the Royal University of Malta; the University of Malaya; the University of Hong Kong; University College of the West Indies; University College, Ibadan, Nigeria; the Makerere College, the University College of East Africa. One of the primary obstacles confronting the establishment of similar faculties in the other colleges is the very heavy financial expenditure involved, in terms of both capital grants and recurrent needs.

Medical Degrees and Scheme of Special Relationship With University of London.—The three universities, Malta, Hong Kong, and Malaya, award their own degrees but at University College, Ibadan, and at the University College of the West Indies, neither of which has as yet the power to award degrees, a temporary arrangement exists whereby students may offer themselves for examinations leading to the M.B., B.S. degrees of the University of London under the scheme of special relationship (see I.U.C. Report, p. 5). The Inter-University Council works in close cooperation with the University of London in the administration of the scheme which has involved frequent visits to the college by delegations appointed by the university to report on development plans, by individuals in an advisory capacity to discuss syllabuses, equipment, and facilities, and by examiners conducting the second and third (final) examinations for the M.B., B.S. degrees.

At Makerere College the courses are designed to lead to the Licentiateship in Medicine and Surgery (East Africa), a qualification recognized by the General Medical Council.

Some comments on problems relating to the international recognition of medical qualifications are set out under the "Professional Education" in the I.U.C. Report (see pp. 12–14).

Establishment of Teaching Hospitals.—Closely associated with the development of medical faculties in the colleges has been the establishment of teaching hospitals. Assistance has been given through the Colonial Development and Welfare Acts, for example the Teaching Hospital in the West Indies, which has been allocated £1,914,000.

In order to ensure that expert advice was available to the University College of the West Indies and to University College, Ibadan (Nigeria), in the planning of their teaching hospitals, the University of London established advisory committees which were regularly consulted over development programmes, architectural matters, and the recruitment and training of nursing and ancillary staff, etc.

Recruitment of Staff.—Staff vacancies in the medical faculties of the University of Malaya and Makerere College are widely advertised through the Secretariat of this Council which also obtains the advice of expert external assessors on the suitability of candidates for appointment to these vacancies. The Council also is ready to assist where possible in the secondment of professionally qualified persons for short-term appointments. Medical staff recruitment for University College, Idaban, and the University College of the West Indies is undertaken by the University of London in view of its special relationship commitments.

Research and Library Services.—The Council regards the encouragement of research as an integral part of the obligations which it is called upon to discharge. Through the generosity of the Carnegie Corporation of New York the Council was enabled some years ago to appoint a library adviser to provide a central service for all the college libraries.

In order to meet the need for specialized publications and back runs of periodicals, which the colleges could not afford to hold in their own libraries, a microfilm service has been set up and a member of the staff of a colonial university can normally expect to receive a microfilm of any reasonably accessible item within 2 or 3 weeks of making his request to his library. (See also I.U.C.

Report, pp. 15–17.) This service is, of course, available in the faculty of medicine as well as in other faculties.

The activities outlined above indicate briefly the major contributions that the Inter-University Council is making toward the provision of adequate medical services within the dependent territories. Plans for further developments over the next 5 years are already in hand, including a major scheme for the expansion of the medical school at the University College of the West Indies and proposals for new buildings for the faculty in the Royal University of Malta, details of which are at present being scrutinized by the Council's advisers.

II. France

A. MEDICAL RESEARCH

Senator HUMPHREY. The vital role which France plays in international medical research is set forth in part I, page 179 ff. Therein are memoranda from the INH and the CRNS—the National Institute of Hygiene and the National Center of Scientific Research—the two official agencies administering research work. In addition, the roles of other distinguished medical facilities, such as the Pasteur Institute in Paris, are cited.

We may, therefore, turn to the oversea medical assistance phase.

B. MEDICAL ASSISTANCE

Through the courtesy of His Excellency Ambassador Hervé Alphand there was compiled in Paris for the subcommittee a report on French medical assistance to oversea areas within the French community.

This information is published herewith, as an important addition to American and international understanding of these endeavors. The work described is often carried out under difficult conditions, particularly in the tropics. Of this report from France, only certain detailed statistical tables have been excluded in order to conserve space. We appreciate the courtesy of the French Government in helping to meet the information needs of our subcommittee.

The emergence into nationhood of many of the African and other countries referred to herein makes it particularly helpful to have a summary of the status of their health services.

1. LETTER FROM AMBASSADOR HERVÉ ALPHAND ON HEALTH PROGRAMS IN FRENCH OVERSEA TERRITORIES

EMBASSY OF FRANCE,
Washington, D.C., July 6, 1959.

DEAR SENATOR HUMPHREY: Pursuant to our previous correspondence, I take pleasure in sending you enclosed herewith a report prepared by the French administration for the Overseas Territories and concerning the health programs in these territories.

Hoping that this information will prove useful for your project, I remain

Sincerely yours,

HERVÉ ALPHAND,
Ambassador of France to the United States.

[Translation (French)]

French Oversea Health Services Progress Report of Medical Achievements in the Oversea Countries of the French Community

Before explaining France's health program in her Overseas Countries, it may be useful to recall that these countries cover a surface of more than 8,280 square kilometers inhabited by 33.5 million persons.

It is obvious that these divers countries, which represent an enormous portion of the African Continent and of the scattered islands of the Seven Seas, have different climates, which range from the climatic conditions prevailing in the Sahara Desert to those in the Nordic regions, passing through the tropical savannahs and the equatorial forests, with such variants as imposed by their situation in both hemispheres.

This diversity of climatic and geographic conditions governs the distribution of the population (the density per sq. kilometer ranges from 0.6 in Mauretania to 89.0 in the Comoro Islands), their way of life (the nomads of the Sahara and its confines, clusters of villages in the savannahs, scattered villages in the forests), and, especially, the pathology which, if it follows the general rule, depends, as do the vectorial insects, on local peculiarities.

This brief summary will explain that France and its health services have had to cope with problems frequently difficult to resolve. Their solution evolved not only by following the trends of the times but also, it should be stated, in harmony with the therapeutic discoveries which have opened new and previously unimagined horizons.

Medical Care.—The organization of the health services in the new countries at the beginning of this century was based on the classic concept of essentially curative medicine, the more so because the pacification of the area had imposed conditions of servitude, which restricted the sphere of action of the health services and forced the army physicians who accompanied the troops to take them over. Very rapidly, however, these doctors had the opportunity to set to work on public health problems, and their first objective was to endow the territories with an increasing number of health institutions of every type. The ideal to which they aspired was that each inhabitant would have an institution within his reach where he would be able to obtain, in case of illness, treatment suited to his condition, the payment for the care received depending on his economic and social position. This is how, in the period 1904–1910, the Assistance Médicale Indigène (Medical Aid for the Native Populations) was brought into being. Along with the creation of health institutions, the Administration established the Corps de Médecins (Medical Aid Service) designed to replace the army physicians who, while waiting for the actual constitution of these corps, acted on a stand-by basis. In fact, the Corps of Physicians of the M.A. never managed to completely fill its contingent, and the preponderance of the M.A. groups were, and still are, being made up of army physicians acting on a stand-by basis.

But France realized full well that, while it had been possible to bring the staff over from metropolitan France, this was only a temporary solution pending the availability of qualified local technicians to take over the public health affairs. That is why she applied herself, along with stepping up the overall education of the masses, to training nurses and matrons, then to setting up regular medical key units, followed up by the establishment, around 1905, of the School of Medicine at Tananarive, and, around 1920, of the School of Medicine of Dakar, each responsible for supplying the M.A. with physicians, pharmacists, and midwives with local diplomas. The latter school was closed in 1952, to make room for a complete institution of higher learning designed, like those in metropolitan France, to lead to graduation with a state diploma of Doctor of Medicine.

From these small beginnings, curative medicine has grown into the present organization of over 3,000 permanent health institutions.

The less serious illnesses are treated in these institutions on an "extern" (out-patient) basis. This "extern" service is constantly and rapidly expanding, resulting, in 1929, in 6 million consultations; in 1939, in 29 million; and in 1956, in 77 million consultations for 23.5 million patients.

When the afflictions are too serious to be properly taken care of at home, the sick are placed in the health institutions' maximum capacity of 62,500 beds, as follows:

—41 hospitals, some of which, endowed with ultramodern equipment and specialized services, are comparable in every way to the large establish-

ments in metropolitan France; the others, despite less modern equipment, possess extensive facilities for diagnosis and treatment;

—593 medical centers, more modest, but more numerous establishments (at least one for each administrative district), permitting satisfactory attention to be given to current medical and surgical activities;

—2,000 rural dispensaries and infirmaries, entrusted to the care of nurses and supervised by the chief physician of the medical district, and often provided with a few beds where the patient awaits his evacuation to the provincial center;

—307 private establishments, ranging in type from medical center to dispensary;

—more than 600 maternity shelters, where 300,000 maternity cases were handled in 1956 and which provided supervision for 20,000 child births in the home.

Furthermore, as regards maternal and infant care, almost 3 million prenatal examinations and close to 10 million examinations of children up to 4 years of age were given in 1956.

—special establishments for the treatment of the mentally ill, for those suspected of contagious diseases, and 160 leprosy institutions where 23,000 patients were hospitalized for a total of 3,500,000 days.

—80 establishments for the treatment of disease by hypnotism, where 7,600 patients were hospitalized for a total of 500,000 days.

In addition to this activity, for further accessibility to the rural population, the professional staff of the medical centers have devoted their time to mobile medical aid. The big villages in the environs are visited on certain determined dates, generally on market days, by a mobile team affording spot treatment of benign cases and directing the seriously ill to nearby health establishments.

This report would not be complete if we neglected to mention the disease prevention services effected by the application of general principles of sanitation, and the medical inspection services in the schools, individualized services in the schools of the big cities, and services in the smaller localities and in the schools in the brush provided by staff members of the medical center. Thus, during 1956, a total of 762,000 pupils were examined, 75,000 systematic radioscopies, and 200,000 allergy tests performed, and 179,000 BCG vaccinations given.

But public health protection imposed the obligation of reaching a maximum of sick persons, giving treatment at the earliest possible time, and taking all necessary measures toward halting the propagation of endemic diseases, in the rural areas as well as in the urban centers. This has led to a dual-purpose conception of sanitary equipment:

—on the one hand, a stationary team devoted to essentially curative treatment and practicing individual medicine. As we have seen, this aspect has been roundly successful among the natives, according to the above figures. But this curative medical treatment is very costly and presents difficulties in reaching the majority of the populations in view of their dispersed condition in most of the oversea countries;

—on the other hand, a mobile unit devoted to the pinpointing, treatment, and prevention of endemic and epidemic diseases, a unit whose primary function is to take preventive action. This unit goes to the patient wherever he may be, and this is what makes for its superiority on the general level of public health protection: mass medicine.

Mass and Preventive Medicine

This concept of mobile medicine became necessary quite early and was codified by Jamot when he set up his mission for the prevention of sleeping sickness in French Equatorial Africa, then in the Cameroons in 1926. Thereafter, in 1935, the anti-Plague Service was organized; in 1939, the Autonomous General Service to fight sleeping sickness in French West Africa and in Togo; and finally, following the French-African Conference which was held at Brazzaville in February 1943, the establishment in 1944 of the autonomous Mobile Health and Disease Prevention Services in French West Africa, French Equatorial Africa, Togo, and the Cameroons. Madagascar, taking its cue from this system, established nine mobile units.

The Brazzaville recommendations provided that these services should be polyvalent, which meant, in sum, the expansion of the principles of the fight against sleeping sickness to all large-scale endemic diseases, and this design was supported by the latest scientific advances; the vaccines, antibiotic and

chemotherapeutic drugs, rodenticides and insecticides, which are available today, have completely changed the conditions for fighting endemic and epidemic diseases by furnishing new, effective means and a relatively easy application of these methods.

The Services d'Hygiehe et de Prophylaxie (health and disease prevention services) (SHMP) comprise a board of directors, technical divisions (trypanosomiasis, leprosy, treponematosis, malaria, nutrition, tuberculosis. . .), and other divisions, each headed by a chief physician who is in charge of the mobile units for pinpointing and on-the-spot treatment. The mobile units are composed of itinerant teams, and have at their disposal specialized stationary establishments (leprosies, facilities for the treatment of disease by hypnosis). Finally, research organizations such as the Institut Marchoux (for lepers) and the Institut d'Ophtalmologie Tropicale at Bamako, the Centre Muraz (polyvalent laboratories) at Bobo-Dioulasso, the Office de Recherche pour l'Alimentation et la Nutrition of Dakar, have been attached to SHMP, as well as personnel training schools, the Ecole Jamot at Bobo-Dioulasso, the Ecole d'Assistance d'Hygiène Antipalustre at Tananarive. These services, which for the territorial groups were placed under general budgets, received considerable financial aid from metropolitan France through FIDES (Fonds d'Investissement de Développement Economique et Social).

After the "Loi-cadre" (1957) was put into effect, the divisions were territorialized, i.e., they were placed directly under the health service of the territory in which they were installed and paid for by the territories out of credit allocations to them under the general budget. Only the Board of Directors and the technical divisions, which made up the service to fight the large-scale endemic diseases, together with the research centers, remained on the Federal level.

With the arrival of the new constitution, the federations were eliminated, as well as the services to fight the large-scale endemic diseases, whose personnel was divided up among the new States of the Community.

Coordination would therefore seem desirable, if not indispensable, and a new formula is now being sought which will make such coordination possible, though guaranteeing the authority of each State over its own mobile health and disease prevention service over which it itself will exercise leadership. In effect, whereas a territorialization of medical care is entirely conceivable, a strictly localized mass activity is apt to be endangered by external influences, for, though the large-scale endemic and epidemic diseases have now been arrested, they are still far from being controlled and constitute a constant menace. That is why it would appear necessary for the new States to have at their disposal, on the large-scale endemic disease level, an instrument of technical coordination which will make it possible to collate all observations and from these to deduce the recommendations based on the results of experiments, the individual repetition of which is always costly.

The work accomplished by the SHMP has been considerable, and the attached tables plainly indicate their activities and the results obtained.

Special mention must be made, however, of the mass campaigns, conducted along with the regular activities of SHMP, whether on a purely national level, such as the antimalaria campaign on Madagascar, or with international aid (WHO, FIDES) for the campaigns against leprosy in French Equatorial Africa, French West Africa, and the Cameroons; against treponematosis in French West Africa, French Equatorial Africa, and Togo; and against malaria in the Senegal, Dahomey, Haute-Volta, Togo, and the Cameroons.

Finally, like stationary medicine, mobile and disease prevention medicine has for a number of years played a very important part in maternal and infant protection and in public health education, long before these terms were even taken over into our everyday language.

Extension programs of maternal and infant protection, with the aid of the WHO and FIDES, are now underway in the Senegal, Sudan, Nigeria, Haute-Volta, and under study in many of the new States of the Community.

Financial aid from metropolitan France given to the territories by FIDES for mass and disease prevention medicine amounted to 2,237 million francs for the former and 5,404 million for the latter, or a total of 7,641 million francs for the period 1947–58 (or, in U.S. dollars, $18,192,850.)

Along with it, international aid started in 1953, contributing, for the implementation of the 1959 program under the United Nations Technical Assistance Program, the amount of $61,000. Not included in this figure are the expenditures inherent in the teams of experts supplied by the World Health Organiza-

tion. Also for 1959, the contribution of the United Nations Children's Fund amounts to approximately $1 million and consists especially of supplying transportation materials, medicines, milk, and insecticides.

Thus, due to the pooling of local, metropolitan, and international resources, to which funds from the European Common Fund are going to be added, great progress has been and is going to be made with respect to medical care and to mass and disease prevention medicine.

Medical Research—Treatment of the sick in the hospitals, as well as on-the-spot treatment, to fight endemic and epidemic diseases or to improve the conditions of public health and nutrition is based on laboratory work and research.

The principal research centers are:

In French West Africa:
- at Dakar:
  - The Institut Pasteur of French West Africa
  - The Institut d'Afrique Noire
  - The Institut des Hautes Etudes
  - The Organisme de Recherches sur l'Alimentation et la Nutrition Africaine
- at Bamako:
  - The Institut de la Lèpre
  - The Institut d'Ophtalmologie Tropicale
- at Bobo-Dioulasso:
  - The Centre d'Etudes sur les Trypanosomiases Africaines
  - The Laboratoire des Tréponématoses
  - The Laboratoires du Paludism

In the Cameroons:
- at Yaoundé:
  - The Institut Pasteur
  - The Laboratoires du Service d'Hygiène Mobile et de Prophylaxie
  - The Institut de la Recherche Scientifique

In Equatorial Africa:
- The Institut Pasteur of Brazzaville
- The Laboratoires du Service d'Hygiène Mobile et de Prophylaxie
- The Institut Pasteur of Banguí

On Madagascar:
- at Tananarive:
  - The Institut Pasteur
  - The Institut d'Hygiène Sociale
  - The Institut de la Recherche Scientifique

In the Pacific:
- The Institut Pasteur on Nouméa
- The Institut de Recherche d'Océanie on Papeete

As for the activity of the French pharmaceutical industry in the field of research, the large metropolitan firms each have their private laboratories. Our oversea activity has heretofore been limited to the collection and study of plans susceptible to therapeutical utilization.

TABLE I

SURFACES, POPULATIONS, DEMOGRAPHIC DENSITIES (1957)

Countries	Surface (thousand square kilometers)	Population (thousand inhabitants)	Average density
(1) Formerly French West Africa:			
Republic of Senegal	197	2,268.6	11.5
Republic of Sudan	1,204	3,708.4	3.1
Republic of Haute Volta	274	3,225.7	12.1
Republic of Dahomey	116	1,712.8	14.8
Republic of Moslem Mauritania	1,086	623.6	0.6
Republic of Ivory Coast	322	2,482.6	7.7
Republic of Nigeria	1,189	2,415	2.0
(2) Formerly French Equatorial Africa:			
Republic of Congo	342	759.4	2.2
Republic of Gabon	267	404	1.5
Republic of Central Africa	617	1,134.9	1.8
Republic of Chad	1,284	2,580.9	2.0
(3) Republic of Togo	57	1,085.2	19.0
(4) Cameroon Trusteeship	432	3,187	7.4
(5) Republic of Madagascar	590	4,918.1	8.3
Province of Tananarive			
Province of Tamatave			
Province of Fianaransoa			
Province of Majunga			
Province of Tuléar			
Province of Diégo-Suarez			
(6) Comoro Islands	2	178	89.0
(7) French Somaliland Coast	22	67.4	3.0
(8) New Caledonia	40	120.6	3.0
(9) French Polynesia	4	77	18.8
(10) St. Pierre and Michelon	0.2	4.9	25.0
Total	8,045.2	30,954.1	3.84

TABLE II

NATIVE POPULATION AND NONNATIVE POPULATION (YEAR 1957)

Countries	Total native population	Total nonnative population [1]	Number of nonnatives per 100 natives	Total population
1. Formerly French West Africa:	*Thousands*	*Thousands*		*Thousands*
Republic of Senegal	2,220	48.6	2.2	2,268.6
Republic of Sudan	3,701	7.4	0.2	3,708.4
Republic of Haute Volta	3,222	3.7	0.1	3,225.7
Republic of Dahomey	1,710	2.8	0.16	1,712.8
Republic of Moslem Mauritania	622	1.6	0.25	623.6
Republic of Ivory Coast	2,471	11.6	0.5	2,482.6
Republic of Nigeria	2,412	3.0	0.1	2,415
2. Formerly French Equatorial Africa:				
Republic of Congo	749	10.4	1.3	759.4
Republic of Gabon	400	4.0	1	404
Republic of Central Africa	1,129	5.9	0.5	1,134.9
Republic of Chad	2,576	4.9	0.2	2,580.9
3. Republic of Togo	1,084	1.2	0.1	1,085.2
4. Cameroon Trusteeship	3,171	16.0	0.5	3,187
5. Republic of Madagascar	4,844	74.1	1.5	4,918.1
6. Comoro Islands	177	1.0	0.6	178
7. French Somaliland Coast	63	4.4	7	67.4
8. New Caledonia	83	37.6	45.3	120.6
9. French Polynesia	?	?	?	77
10. St. Pierre and Michelon	0	4.9		4.9
Total	30,634	243.1	0.79	30,954.1

[1] The percentage is figured without taking into account French Polynesia for which no distinction between native and nonnative is made.

TABLE III

ACTIVE PUBLIC AND PRIVATE HEALTH PERSONNEL (UNITS) (1957)

Countries	Total medical and paramedical personnel		Official and private physicians		Number of physicians per 100,000 inhabitants	
	Native	Non-native	Native	Non-native	Native	Non-native
1. Formerly French West Africa:						
Republic of Senegal	1,957	531	137	122	6.03	5.37
Republic of Sudan	676	116	52	49	1.40	1.32
Republic of Haute Volta	726	39	28	24	.86	.74
Republic of Dahomey	558	34	38	19	2.21	1.10
Republic of Moslem Mauritania	118	8	5	8	.80	1.28
Republic of Ivory Coast	1,323	213	81	62	3.26	2.49
Republic of Nigeria	391	52	22	24	.91	.99
2. Formerly French Equatorial Africa:						
Republic of Congo	1,017	317	32	79	4.21	10.40
Republic of Gabon	394	80	9	33	2.22	8.16
Republic of Central Africa	398	122	10	36	.88	3.17
Republic of Chad	483	113	9	35	.34	1.35
3. Republic of Togo	498	36	21	15	1.93	1.38
4. Cameroon Trusteeship	1,411	306	101	86	3.16	2.69
5. Republic of Madagascar	2,299	419	561	154	11.40	3.13
6. Comoro Islands	59	4	6	3	3.37	1.68
7. French Somaliland Coast	84	46		9		13.43
8. New Caledonia	240	198	3	50	2.50	41.66
9. French Polynesia	103	56	1	25	1.29	32.46
10. St. Pierre and Michelon		21		4		81.63
Total	12,735	2,711	1,116	837	3.60	2.70

TABLE IV

NUMBER OF PUBLIC AND PRIVATE HEALTH ESTABLISHMENTS, HOSPITAL CAPACITY (1957)

Countries	General medicine, number of health establishments	Specialized medicine, number of health establishments	Total number of beds	Number of beds per 10,000 inhabitants
1. Formerly French West Africa:				
Republic of Senegal	172	117	5,093	22.4
Republic of Sudan	201	39	2,793	7.5
Republic of Haute Volta	123	22	2,266	7.0
Republic of Dahomey	134	45	2,578	15.0
Republic of Moslem Mauritania	35	5	209	3.3
Republic of Ivory Coast	182	83	5,758	23.1
Republic of Nigeria	84	19	909	3.7
2. Formerly French Equatorial Africa:				
Republic of Congo	143	47	4,310	56.9
Republic of Gabon	98	31	2,795	69.1
Republic of Central Africa	98	24	1,593	14.0
Republic of Chad	123	22	1,974	7.6
3. Republic of Togo	125	20	2,143	19.7
4. Cameroon Trusteeship	370	65	4,955	46.9
5. Republic of Madagascar	456	342	12,207	24.8
6. Comoro Islands	26	6	334	18.7
7. French Somaliland Coast	6	6	520	77.6
8. New Caledonia	60	24	1,526	127.1
9. French Polynesia	29	7	497	64.5
10. St. Pierre and Michelon	2	2	124	253.0
Total	2,467	926	62,584	20.2

III. SWEDEN

Senator HUMPHREY. As indicated in our hearing volume, part I, pages 246 ff., the Swedish medical research program is one of the most outstanding in the world.

Having had the personal privilege of visiting with some of its principal leaders, I feel all the more keenly regarding the great role which Swedish medical science is playing in advancing the world's scientific horizons.

The subcommittee has had the pleasure of a visit to its office by Dr. Bror Rexed, secretary of the Swedish Medical Research Council. Following Dr. Rexed's visit, I wrote to him asking if he would set forth a brief summary of the magnitude of Swedish programs.

Dr. Rexed kindly and promptly responded. The translated text of his reply follows:

A. Memorandum From Bror Rexed, M.D., Secretary, Swedish Medical Research Council, on Sweden's Research Program in the Life Sciences

[Translation (Swedish)]

The 1955 report of the Royal Commission on Higher Education gave the total expenditures for medical research during the year 1955 as 29,822,000 Swedish crowns.[1] Of this, some 24.5 million crowns were public grants; 4.2 million, private grants; and 1.2 million, other grants. Since 1955 the grants for research have risen considerably. In the following, the Secretary of the Swedish Medical Research Council has made a rough estimate of the expenditures for medical research during the year 1959. It must be emphasized that this estimate is preliminary and summary.

In the table below, separate amounts are given for (*a*) grants which have been given during 1959 for medical research by the Swedish Medical Research Council (fiscal year 1959–60); (*b*) grants from private funds and foundations; and (*c*) grants from abroad (mainly United States). It has not been possible to obtain the exact figures of the outlays through universities and institutes of higher learning. To obtain an estimate of these outlays, the following basis of calculation has been used.

The Caroline Institute has been selected as an example to show the increase of the national appropriations to the medical universities and colleges between the years 1955 and 1959. The comparison is made between the appropriations for the fiscal years 1955–56 and 1959–60. To calculate the expenditures for research only, the same principles have been used as those applied by the Royal Commission on Higher Education (i.e., the appropriations for salaries to regular personnel have been put down at half their value, but salaries to personnel at the instruction hospitals, at a third; building costs have not been included; etc.)

The budget appropriations to the Caroline Institute have, on this basis of calculation, increased by about 45 percent between the fiscal years 1955–56 and 1959–60. It is therefore assumed that the national appropriations to the remaining medical universities and colleges have increased at the same pace. (This is hardly an overestimation as the medical faculty of the University of Gothenburg has expanded greatly during these years and the Medical School at Umeå has come into being.)

The special clause in the calculations of the Royal Commission on Higher Education concerning mainly publications, here called miscellaneous grants, is assumed unchanged.

According to these calculations, the expenditures for medical research during the years 1955 and 1959 can be assumed to be the following. The figures are in million Swedish crowns.

	Total expenditures	Breakdown				
		Public grants except Medical Research Council	Swedish Medical Research Council	Private grants	Grants from abroad	Miscellaneous grants
1955	29.82	22.25	2.207	3.58	0.595	1.192
1959	52.0	32.8	5.686	[1] 9.8	2.5	1.192

[1] Among the private grants are included grants in a total of 3,300,000 crowns for building laboratories at universities and medical colleges. Grants given by drug and medicine factories for research are not included.

[1] The Swedish krona is currently quoted at $0.19.

The increase in the total expenditures for medical research between the years 1955 and 1959 has been estimated as 74 percent. Accounting for the depreciation of the value of money during the period, the real increase can be established at 60 percent.

Uppsala, May 18, 1960.

(Signed) BROR REXED,
Professor; Secretary
(For the Swedish Medical Research Council).

IV. FEDERAL REPUBLIC OF GERMANY

Senator HUMPHREY. The achievements of German science are so well known that they hardly need repetition on anyone's part. The subcommittee was naturally interested, therefore, on the international role of German medical science.

The following preliminary staff memorandum relates to German medical assistance abroad. It includes data on medical education of foreign students. Germany for many years in the late 19th century and in the present century provided invaluable leadership in international medical education, both undergraduate and postgraduate. So urgent is the need for such training, particularly for students from underdeveloped nations, that I am sure all nations welcome the renewal, following World War II, of German universities' vital role, among others.

I have in mind not only the welcome training of doctors of medicine but of foreign biologists, chemists, and physicists who may contribute directly and indirectly to the research potential of the world's scientific community.

STAFF MEMORANDUM ON WEST GERMAN ASSISTANCE TO LESS DEVELOPED COUNTRIES FOR HEALTH-RELATED PURPOSES

The subcommittee understood that West German assistance in the medical or health field has thus far been on a relatively limited scale. Total assistance during the period 1956–60 amounted to about DM17 million or $4.1 million,[1] of which the greater part (approximately DM12 million) is programed for projects which have not yet been commenced. Only a small proportion of the projects listed in the following table (about DM2 million) has reportedly been fully implemented. The German program includes a total of 40 projects in 21 different countries, mainly in Africa and Asia.

Almost a third of the DM17 million program has been promised for equipment and staffing of the Duke of Harrar hospital in Ethiopia. Assistance for this project, which has not yet begun, will total DM5,425,000. Donation of clinics and laboratories, including mobile units, amount to DM4.7 million. Contribution to a World Health Organization program for combating malaria in Indonesia amounted to DM1.7 million. The remainder of DM5.3 million is being utilized in supplying personnel, medical, and laboratory equipment, and assistance in the training of local personnel.

Nongovernmental activity

It has not been possible for the subcommittee to obtain data on the activity and expenditure in this field by nonofficial German sources. There are no centralized records of aid granted by private organizations, nor are there any centralized records of orders placed with private firms for the supply of medical or pharmaceutical equipment to less developed countries under the Government's export credit insurance program.

Medical education

The Federal Republic is also participating in the training in Germany of medical students from less developed countries. During the winter term 1959-60,

[1] The West German mark is currently quoted at $0.23.

21,650 foreign students were enrolled in universities and colleges of the Federal Republic of Germany and West Berlin. Of these, 5,857 (or about 27 percent) were students of medicine, including dental medicine. The number of medical students from less developed countries amounted to 4,153 in that term. It is estimated that about 400 of these students were recipients of scholarships from German sources (the Development Fund of the Foreign Office, various semiofficial or private foundations, funds made available by state governments, academic associations, and universities or colleges). The average grant under these German scholarships amounted to DM4,200 per annum plus a contribution to traveling expenses averaging about DM800. Thus the scholarships granted to medical students from less developed countries by German sources totaled about DM2 million ($476,000) in the summer and winter terms 1959–60.

The largest group among 4,153 medical students from less developed countries in the winter term 1959–60 was that from Iran, totaling 1,515. Others in order of importance were those from Greece, 742; United Arab Republic, 618; Jordan, 249; India, 159; Iraq, 159; Nigeria, 83; Indonesia, 82; Turkey, 64; Lebanon, 63; Ghana, 48; Thailand, 47. The remainder came from other less developed countries in Asia, Africa, and Latin America (39) and Spain (13).

Medical students from less developed countries whose studies were not financed by scholarships from German sources were either sent by their own governments or had been awarded scholarships by the United States, the United Nations, or international organizations, or were individuals pursuing their studies at their own expense.

The West German Federal Republic and local governments must pay approximately DM5,000 per annum per student by way of state assistance to universities or colleges. This form of contribution toward the education of the 4,153 medical students from less developed countries in the summer and winter terms 1959-60 amounted to about DM21 million ($5 million).

TABLE ON BILATERAL DEVELOPMENT AID OF THE FEDERAL REPUBLIC OF GERMANY FOR HEALTH-RELATED PURPOSES IN 1956–1960

Country	Type of development project	Amount in DM1,000
Afghanistan	Sending of an expert for blood-bank	50
Ethiopia	Equipment and physicians for Haile Selassie hospital	600
Do	Equipment of Duke of Harrar hospital, and sending of physicians.	5,425
Do	Contribution to salaries for three German physicians	470
Do	Equipment for Tana Lake hospital	570
Do	Sending of a pharmaceutist	145
Do	Donation of a mobile X-ray unit	135
Ghana	Donation of a mobile dental clinic	150
Greece	Olympia Hospital	250
Do	Cancer laboratory at Saloniki	2,500
Guinea	Donation of a mobile medical unit	125
Do	Mobile veterinary unit, including sending of experts for 2 years.	290
Do	Training of Guinean veterinarians and sending of an expert to examine the possibilities of establishing a laboratory for producing vaccines.	86
Do	Equipment and experts for producing quinine	340
Do	Training of nurses	100
Do	Sending of a medical-technical assistant for 2 years	60
Do	Training of 2 Guinean physicians	30
Do	Sending of an entomologist (for combating onchocerciosis) for 3 months.	23
Indonesia	Sending of medical expoerts	20
Do	Equipment for dental clinic	600
Do	Contribution to WHO for combating malaria in Indonesia	200
Iraq	Equipment for veterinary faculty	15
Iceland	Donation of a blood bank	40
Cameroon	Donation of a mobile medical unit	150
Korea	Promoting health service	1,500
Liberia	Equipment for Las Palmas hospital	273
Libya	Mobile veterinary unit and sending of veterinarians	120
Do	Mobile medical unit, including sending of a physician	200
Malaya	Donation of an X-ray unit	150
Nigeria	3 mobile medical units	375
Do	Sending of 3 physicians and hospital equipment	800
Pakistan	X-ray equipment	37
Do	Mobile medical unit	150
Peru	Equipment and sending of physicians for Lima institute for tropical diseases.	535

TABLE ON BILATERAL DEVELOPMENT AID OF THE FEDERAL REPUBLIC OF GERMANY FOR HEALTH-RELATED PURPOSES IN 1956–1960—continued

Country	Type of development project	Amount in DMI,000
Thailand	Donation of an ambulance ship	31
Togo	X-ray equipment and apparatus for X-ray therapeutics	190
Do	Sending of physicians	300
Tunisia	Mobile veterinary unit, with veterinarian	120
Do	Courses in ophthalmology	3
Do	Mobile X-ray unit for serial examinations to combat tuberculosis, and sending of an X-ray specialist.	220
Total		17,378

V. Appraisals of Research in Western European Nations

Senator Humphrey. The subcommittee is concerned with the answer to this question:

"What may be said as to the relative quality and magnitude of each of the respective nations' research efforts?"

Comparatively few evaluations of individual nations' efforts are available. Almost any evaluations are hazardous at best and subject to inherent difficulties and possibilities of national and individual bias.

A. A NONOFFICIAL APPRAISAL BY AN AMERICAN OBSERVER

One such evaluation appeared in the August 1, 1958, issue of the distinguished magazine "Science," published by the American Association for the Advancement of Science. This article came out just 2½ weeks before the authorization of our study. It provides interesting insight into current work in both the physical and the life sciences. It is not an official article and its publication here does not represent any official view, but merely a desire to collect evidence.

There are a great many controversial points within the article. I would not in any way attempt an evaluation of the article itself. I do believe, however, that whatever its limitations, it is pertinent and useful to our study.

It should be analyzed carefully by all experts willing to look at others' frank opinions. No nation, including our own, can afford to be smug or to rest on its laurels.

Therefore, the article is reprinted at this point. It is followed by excerpts from a pertinent memorandum by a European scientist.

A. A NON-OFFICIAL APPRAISAL BY AN AMERICAN OBSERVER

[Reprinted from Science, Aug. 1, 1958]

Basic Research in Europe

DIFFERENT COUNTRIES FAVOR DIFFERENT SYSTEMS FOR THE SUPPORT AND ORGANIZATION OF SCIENTIFIC WORK

David M. Gates

(Note.—The author is assistant division chief of the Radio Propagation Physics Division, Central Radio Propagation Laboratory, National Bureau of Standards, Boulder Laboratories, Boulder, Colo. From 1955 through 1957 he was deputy scientific director and then scientific director of the London branch of the Office of Naval Research.)

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Europe offers an unusual opportunity to observe the support and organization of scientific research conducted by countries differing greatly in their cultural and economic histories. We see in some European countries highly successful research organizations; in some, very brilliant individuals; and in some, very little of either. Perhaps by looking closely at these examples one can learn lessons of use in our own country. Some of the outstanding features concerning the organization and support of scientific research and the general level of scientific activity in the various European countries are discussed in this article.

The Office of Naval Research of the U.S. Navy has maintained for 10 years a branch office in London which is engaged in the exchange of scientific information between America and Europe. This office is staffed primarily with university and Government scientists, appointed for 1 or 2 years, who are on leave of absence from their American institutions. These men, about 15 scientists, are visiting European universities and research institutes, exchanging ideas in almost every field of science. The observations presented here represent an interpretation of the viewpoints expresssed by some of these scientists and of my own personal experience.

Great Britain

Most observers agree that the scientists of Great Britain are making first-rate contributions to all fields of science. This must indeed be evidence of good organization, of a sound educational system, and of a stimulating cultural and economic environment. In Great Britain the general responsibility for national scientific policy rests with the Lord President of the Privy Council, to whom two scientific advisory groups report: on the military side is the Defense Research Policy Committee, and on the civilian side, the Advisory Council for Scientific Policy. The DRPC is composed of the chief scientist from the Admiralty, the War Office, the Air Ministry, and the Ministry of Supply. The ACSP has a more diverse representation, from the Councils for Scientific and Industrial Research, Medical Research, Agricultural Research, and Nature Conservation. The scientific policy of these councils is determined by their membership, which is composed of eminent scientists from universities and representatives of industry and labor as well. The Research Councils also make grants and award contracts for research to be done at universities and elsewhere, and give fellowships for the training of research workers at postgraduate levels. The principal government organization in Great Britain for dealing with research and its application is the Department of Scientific and Industrial Research (DSIR), under whose jurisdiction come 14 research organizations, such as the National Physical Laboratory. A number of civil departments, such as the Ministry of Power and the Home Office, have scientific staffs and a scientific adviser. Liaison between these departments and the Research Councils is close and informal.

Among the nongovernmental societies which are greatly relied upon for advice and for the dispersal of funds is the Royal Society of London, composed of about 500 fellows who are preeminent in the scientific community of the British Empire. A considerable endowment has been built up over the years, and the interest from this supports special professorships and research to the extent of more than $100,000 per year. In addition, the Ministries grant money through the Royal Society for certain special projects.

When Americans think of British universities they usually think of Oxford and Cambridge and are generally surprised to learn that most of Great Britain's 22 universities are more youthful than their own. Prior to 1900 there were only 12 universities in existence there. Since World War II, five new universities have received full recognition. More than 70 percent of the students receive scholarships derived from private or public funds, a situation adding considerable strength to the British educational system. The DSIR alone provides over $1.5 million per year for research scholarships.

The British universities are government supported and are represented to the government through the University Grants Committee. This committee is the direct link with the Chancellor of the Exchequer, and establishes budgets and policies on a quinquennium basis. In general there has been sufficient money available for research, although most British professors feel that they could use more, and as a result have accepted support from American military agencies. A very few academic research projects are supported by the British military research laboratories.

One gets the impression that there is somewhat greater stability and freedom in the British system for the support of research than in the American system. In Britain the Chancellor of the Exchequer presents his budget to Parliament, usually in March, and Parliament must either accept or reject it in total. Rejection means a fall of the government. It is in the preparation of this budget and in making reductions in the budget that the Defense Research Policy Committee and the Advisory Council on Scientific Policy play their greatest role; all final decisions must be made by them. The amount of money available for research can be counted on from year to year so that long-range plans can be made with assurance. Manufacturers with government contracts can make their plans for a number of years in advance with the almost certain assurance that the Treasury will live up to its commitments. Greater freedom is achieved by supporting individuals and institutions per se, rather than by supporting specific projects with definite objectives, as is the case in the United States at the present time. Many research institutes and individual scientists in Britain know that so long as they are productive they will receive support on a continuing basis without having to campaign for funds each year or having to submit project proposals frequently to various agencies. Several of the 14 government institutes set up under DSIR receive funds from the military agencies but are almost completely shielded from any political pressures which might tend to divert the effort of the institute into applied research rather than basic research.

A considerable amount of university construction is taking place in Britain today, but this has not made up for the great overcrowding of the universities which took place just after the war. University salaries are low; in fact, a university scientist in Britain is relatively worse off than his counterpart in the United States. The shortage of engineers and scientists is decried everywhere, and there is some criticism of American recruiting in Britain of this precious commodity.

Scandinavia and Finland

Considered as having the highest standard of living of any part of Europe, Scandinavia (comprised of Sweden, Norway, and Denmark) and Finland are held in very high esteem for their scientific preeminence. Sweden is outstanding in nearly every scientific field, and its scientific productivity is high, a factor closely related to the fact that Sweden has been successful in avoiding wars and foreign military occupations and has the greatest supply of mineral resources in Scandinavia. Denmark exhibits excellence in the biological sciences, but except for the Bohr Institute cannot be considered as outstanding in the physical sciences. Medical Sciences in Denmark are outstanding, largely because of the Carlsberg Foundation which receives its support from the Carlsberg Breweries. Norway and Finland have contributed very notably in certain narrow areas such as auroral physics, oceanography, and in dental science; however, it is difficult for these small countries to compete in quantity with the larger countries.

In Sweden one is struck by the newness and spaciousness of the academic research laboratories, which can be referred to only as ultramodern and as the finest in Europe, if not the finest in the world. Few American university laboratories are any better equipped. This is consistent with the fact that Sweden maintains the highest standard of living in Europe and has an extremely high cultural standard. Academic salaries have been raised in the last couple of years and compare favorably with those in England.

Unfortunately for Sweden, one of her greatest exports is young scientists, a situation created by the lack of opportunity within Sweden and by the strong demand in the United States. The situation is aggravated by a very rigid and formalized professorship structure within each Swedish university. A lecturer who has been at a university for 7 years and has not achieved a professorship must go to another university. However, in view of the fact that at the four universities in Sweden there are usually only one or two professorships in any given field, this forces out of the country many extremely competent young scientists. In one or two exceptional instances the King has established a "personal" professorship in order to retain an outstanding man. The system of training scientists and appointing faculty members in Scandinavia is considerably different from that in America, and even different from that in the rest of Europe. There are three principal degrees: kandidat, licentiat, and doktor, to be interpreted as an M.S., a poor Ph. D., and a very good Ph. D. degree, respectively. The kandidat degree is given after examinations have been taken in

three subjects, and requires 3 to 4 years of study. To obtain the licentiat a substantial research paper is required, in addition to advanced study in seminars and independent study. Persons wishing to teach or do research in universities will then study for the doctoral degree, although minor positions are filled from the two lower degrees. The doctoral thesis is of book length and usually takes several years to complete. The position of docent provides the best opportunity for research. There is usually only one docent per department, and the salary is nearly as large as that of the professor. Appointments as docent are made for 6 or 7 years and may not be renewed, which leads to the difficulty mentioned above. When a professorship becomes vacant the position is filled by competition among the docents applying, the selection being made by a committee of professors from all the Swedish universities.

The four universities are represented to the Minister of Education by the university councillor, to whom they present their budget requirements. The Minister of Education deals directly with Parliament. Money for new buildings, university salaries, and some research comes through these channels. Additional money for research comes through the efforts of the National Councils for Natural, Technical, Medical, and Agricultural Sciences, which make their pleas to the Ministers of Education, Commerce, and Agriculture.

Research contracts are written between the professor and the council, and reports must be written at the conclusion of the research to describe the results. Any equipment built from contract funds must be made available to other universities or institutes if it is no longer required by the parent laboratory. A very thorough general planning of science in Sweden was made by various committees set up just after the war. The success with which they executed their plans for the scientific research programs in Sweden can be attributed in part to the smallness of the country and to the unanimity with which the committees could operate.

Like Scandinavia, the isolated country of Finland has a high standard of living and a great love of learning; its educational system is one of the finest in the world. Because of its strange language and its location, Finland probably has had less contact with Americans than has any other European country outside of the Iron Curtain. It has four institutions of higher learning, two privately supported and two state supported. Finland is to be all the more admired since, despite the fact that she suffered a great loss of life and property during the Russo-Finnish War and has had crushing economic obligations since then, she has paid off her World War I debts to the United States. In recognition of this, Congress passed Public Law 265 in 1949, which provided that money paid in this fashion should be put into a special account for the support of Finnish educational and scientific activities. The fund may be used for buying American books and equipment and for exchanging scientists between the two countries. At present, approximately $400,000 per year is available for this exchange. Noticeable consequences of this law are that Finland sends a greater proportion of its postgraduate students to the United States for training than does any other European country and that Finnish laboratories now have considerable American-made scientific equipment. On every hand one hears appreciation for this contribution. Seldom has American money abroad been spent more effectively. Although in most fields of research the Finnish contributions cannot be considered outstanding, in certain specific interests they have given exceptionally brilliant men to science. They are well known for their research in X-ray crystallography and in meteorology and are presently developing a good oceanographic program. Many new buildings are seen in Finland, and although at the present time these are not occupied to full capacity, there is every indication that within a few years they will be bursting with activity.

Germany

Germany is behind Great Britain and Sweden only because of the devastating effects of the war and of the Nazi regime. First-rate research is being done in every field except nuclear physics, bacteriology, and physiology, areas affected most strongly by the politics of the war. A great resurgence of high-level research is witnessed everywhere in Germany today. Germany is missing almost an entire generation of scientists, the age group of 35 to 50. Some positions of authority (such as professorships) are held by distinguished scientists who are now elderly and whose contacts with the many excellent younger men are not as close or always as inspirational as is necessary for the greatest productivity to be achieved. Unfortunately, another difficulty exists in Germany because some

second-raters got into positions during and just prior to the war; these men are now only middle-aged and are there for many years to come. This situation is not general, and only slightly influences the general picture. There is little doubt that, barring unforeseen economic and political reserves, in another decade German science will rival Britain's in almost every field.

Since many of the German universities and research institutes were heavily damaged during the war, it has been necessary for German scientists to spend much of their time and effort during the last decade on reconstruction. Many of the great Kaiser-Wilhelm Institutes, which were located in Berlin before the war, were destroyed, and their personnel dispersed both west and east. The Kaiser-Wilhelm Institutes have been reformulated under the Max Planck Gesellschaft, and many of them have been relocated at university cities in western Germany. Today there are more than 40 of the Max Planck Institutes and another dozen or more under the Kaiser-Wilhelm designation in Berlin-Dahlem in the American zone. These institutes receive their support from the states of Western Germany.

Much of the scientific research in Germany is supported by the Deutsche Forschungsgemeinschaft, which has its headquarters at Bad-Godesberg, near Bonn. This association receives its money from both the Government and industry. Membership is comprised of advisers for each field, selected from among the university professors throughout Germany. These committees then pass on the requests for grants from the various universities. Usually rather definite areas of research are supported by the Deutche Forschungsgemeinschaft; however, the grants are usually given to an institute rather than to individuals. The universities in Germany are state supported, and since some states pay more than others, it is difficult to attract good people to the more poorly paid universities. In contrast to England, there are no fellowships or scholarships for students, and so most students must either come from well-to-do homes or work their way through the university. One state, Hesse, offers a free university education to any student resident in that state who can pass the entrance examination.

Several new German universities have been established since the war, such as Free University in Western Berlin, which has received a great deal of Ford Foundation support, and the Johannes Gutenberg University in Mainz. In addition, one observes a burst of activity in certain localities. The University of Bonn, which formerly had no tradition whatever in physics or, particularly, nuclear physics, during the last couple of years has received a large sum for establishing two institutes: an institute of physics and an institute of nuclear physics. The latter is starting an extensive building program of laboratories, offices, classrooms, and a 70-Mev synchrotron, the total cost to be about $1.5 million. The physics institute is building a 500-Mev electron synchrotron which is to cost at least as much. In the near future, the University of Bonn will be the best equipped of the German universities for nuclear physics. The funds come from the highly industrialized state of North Westphalia. Other departments in this university are doing nearly as well. Controlled fusion research is being done at Göttingen, Aachen, Munich, and Hamburg.

At the Munich universities alone there are more than 70 inorganic chemists, and it is felt by some that research in synthetic inorganic chemistry is proportionately greater in German universities than it is in the United States. In fluid mechanics, Germany is the country in Europe best organized to carry out basic research. This is done primarily at the *Technische Hochschulen*, which are state supported, at which are located the private research laboratories of some of the professional societies. The situation in the field of solid-state physics is discouraging and reflects all the ills characterizing Germany as a whole. On the other hand, the Siemens industrial laboratories are among the best in Europe.

One sees throughout Germany most departments capably directed by a senior staff and work enthusiastically developed by the junior scientists and students. In the smaller departments, a single professor may still do all the lecturing and younger men may wait many years for a professorship. Furthermore, one must take special examinations in addition to the Ph. D. degree in order to lecture at a German university. Although there has been a tremendous resurgence of science in Germany, the Germans are still hampered by an inflexible professorial system which has not met the changing demands of recent times. One can say in general that scientific research is adequately supported in Germany today by the Federal and state Governments, and that industry is making a

sizable contribution. The great efforts made by American foundations and by the U.S. Government in collaboration with the German Government during the last ten years have gone a long way toward resurrecting in Germany a healthy intellectual environment.

Netherlands

Scientific research in the Netherlands can be typified by the word *quality* rather than *quantity*, and the excellence of the work reflects a high degree of organization and a well-conceived educational system. The Dutch have had to work hard for everything they have, and their obstinacy and perseverance have shown up in an individualism which is unique in Europe. It has often been said that one Dutchman is an individual, two are a committee, and three are an organization. The Netherlands is the equal of Sweden and Germany in the physical sciences, may fall slightly behind in the biological area, and is first rate in psychological research. The Dutch suffered severely in the war and lost heavily in scientific manpower and equipment. It is indeed remarkable that today one scarcely notices the effects of that catastrophe.

Dutch science can best be typified as a melding of the basic and the applied; it exhibits great individualism and at the same time skillful planning and organization. To exemplify this one need only mention the Philips Research Laboratory, the Kamerlingh Onnes Laboratory, and the Technical University at Delft. The nuclear physics laboratory at Utrecht is run on a 5-year plan which is revised every year. The physics department is expertly run through committees, and, in addition, one member of the staff acts as business manager.

Research work in the Netherlands has been more or less tailored to the needs of the country. The Dutch have been famous for their work in hydraulics, in geodesy, in seismology, in botany (stemming from their plantations in the East Indies), in agriculture, in cyogenics, and in statistical mechanics, and since the war they have been working on the peaceful applications of nuclear energy. Their university laboratories are overcrowded and they decry a lack of trained personnel. Their newer laboratories are elaborately designed to reduce the need for technicians. The lack of scientists stems from the rigors of the Dutch system of education.

There are nine universities and technical high schools in the Netherlands, located in Amsterdam, Rotterdam, Leiden, Utrecht, Delft, Groningen, Nijmegen, and Wageningen. Several of the state universities were founded in the 16th and 17th centuries, while the technical universities were started at the beginning of this century. Though one sees numerous old buildings on each campus, the number of structures erected since the war is impressive. The universities are supported locally by their municipality or state and have an average enrollment of about 5,000 students, with a 3-to-1 ratio of men to women. Students graduating from secondary school are admitted to the university by examination. Often after the first or second year further oral examinations are required. After the bachelor's degree, about 3 years may be spent in graduate study which culminates in a comprehensive examination. The industries are happy to employ people at this stage, and so, partly for this reason, and partly because of selectivity, only a few students proceed beyond this point to get the Ph. D. The Ph. D. thesis usually takes another 3 to 4 years, and so the total time spent in graduate work may amount to 6 or 7 years. The Ph. D. thesis is much more elaborate than the American one, so the recipient of a Dutch Ph. D. may be considered as having had considerably more experience. These factors, along with the possibility of 2 years of military service, tend to restrict severely the number of Ph. D. candidates. The situation is further aggravated by the fact that industry pays salaries at least 50 percent higher than the universities do.

The result of this system is that in most academic laboratories one finds a professor at the head of an organization containing from 30 to 150 people. The professor will therefore have considerable administrative work within his own department. The academic pyramid is well filled at the very bottom with large numbers of graduate students, but there are too few people in the intermediate ranks between the Ph.D. degree and the full professorship.

A number of scientific research institutes which conduct research in almost all fields of science are active. The most noted of these institutes is the Central Council for Applied Scientific Research in the Netherlands, T.N.O. (Nederlandse Centrale Organisatie), located at The Hague, and organized in 1932. This organization has five branches which function as national research councils for industrial, nutritional, health, agricultural, and defense research. There are

specific institutes working on programs in each area at the main laboratory at The Hague.

Basic research in the universities is supported through the Foundation for Fundamental Research of Matter and by the Netherlands Organization for Pure Research, Z.W.O. (Stichting voor zuiver Wetenschappelijk Onderzoek i.o.). These agencies are Government-supported but receive substantial contributions from industry as well.

France

Most visitors to France agree that the potential of the country for research is considerably greater than her productivity. France is a dilemma and a bit difficult to analyze. Science in France exhibits towering individualism, inspired ideas, and localized brilliance, but seldom reflects a large coordinated program involving teamwork. Three factors have probably contributed most strongly to the fact that French science is not more enlivened today than it is: the overly idealistic approach to the organization of scientific research which took place between the two world wars, the virtual isolation of France by occupation during World War II, and a rather inflexible but highly respected educational system with a great tradition for the arts and literature. French science today lacks adequate support by one or two orders of magnitude. This is a bit surprising when one considers that French scientists have enjoyed positions of great political and social prestige, more so than in almost any other country. France did not receive the stimulus of the war which led to the great cooperative efforts between basic and applied research which took place in the United States and Britain and which have rallied support for science in these countries ever since. Basically, the difficulty in France is an economic anemia resulting from the following factors: (i) wars have drained France of personnel and of scientific and industrial materials; (ii) France is an agricultural country of peasant proprietorship; (iii) for France, Paris is the hub of the universe and acts as an economic drain on the rest of the country.

French science is organized under the Centre National de la Recherche Scientifique. The council of CNRS is admirably constituted, being composed of several hundred scientists who have distinguished themselves by recent research and who must continue to engage in research. CNRS has a representative on the Commission for the Planning of National Expenditure, which reports directly to the Minister of Finance. Within the CNRS the decisions of the council are carried out by an executive committee which can plan research on a national basis.

One notices in France, more than in any other country, that the scientific laboratories are housed in ancient buildings, remnants of a glorious past. Academic salaries are desperately low, and as a result many scientists must hold more than one job in order to earn a living. For a number of years there were large inequalities between the salaries paid by the Ministry of Education and those paid for professorships by CNRS. This situation has been somewhat corrected in recent years.

Despite the good intentions of CNRS, French science seems to be rampant with personal enmities which are severely retarding its growth, with a neglect, conscious or otherwise, of the provincial universities, and with an overemphasis of some fields at the expense of others. The strong personal feelings may be the result of a rather volatile sociological and political system which allows opinions to be expressed without fear of persecution or ostracism. This is a freedom which has considerably wider bounds in England and France than it has had in America since World War II. Another difficulty is exemplified by the procedure for the appointment of professors at the Sorbonne. Each candidate must have a personal interview with every member of the faculty, an interminable procedure, since there are several hundred faculty members. This procedure also is used for election to the French Academy of Sciences.

The French university faculty organization is still based on the patron system, the professor being responsible for all of those under him and usually dictating the program of research his disciples will follow. This is not solely a French affliction but is a general European characteristic. A departmental staff may consist of a professor, who may or may not teach, an assistant professor, a *maitre de conférence* who does most of the teaching and who is held in great esteem, a *chargé de cours* who is not an official member of the faculty, and, finally, laboratory assistants who are entirely involved with research and study. In France, university courses usually are taken without credit, and one's recog-

nition and position come from the esteem in which he is held by his colleagues, based upon knowledge and research productivity. The universities are primarily supported by the National Government through the Ministry of Education, which, at the operating level, is reasonably free of the vagaries of French politics.

Thinking of French science, one is reminded of the brilliant contributions which have been made to optics, to the study of the night sky, to solar and radio astronomy, to electronics (traveling-wave tubes, carcinotrons, and photomultipliers), to the bathyscaphe for oceanography, to magnetism, to radioactivity, to tropical-disease research, to immunization, and to psychology. From an engineering standpoint, the French system for the distribution of electricity over the country is one of the best. In most cases these are examples of brilliant individual contributions with little mass effort in evidence. Often interest in a subject will wane when its leading scientist dies. Probably the most enviable characteristic of French science is the ability to develop towering individualism and great imagination, a characteristic we must encourage in America.

Italy

Although a creditable amount of excellent research is being done in Italy, there are certain circumstances which tend to reduce the research productivity of Italian laboratories. The universities generally derive support from state and local funds, and money for research from these sources is virtually nonexistent. Research is supported by the Federal Government through such agencies as the National Research Council or the National Institute for Nuclear Physics. The Government has set up numerous research centers at universities specializing in different subjects, and much of the notable research is being done at these universities.

Several factors work toward diluting the quality of Italian research; among these are low academic salaries, heavy teaching duties, multiple jobs, large classes (300 to 800 not uncommon) without laboratory work, a doctorate degree the equivalent of a good American master's degree, inadequate research experience in work for degrees, free and easy publication, the existence of too many journals of inadequate standards, the acceptance of quantity rather than quality in publication, and the environment of a country steeped in the cultural traditions of the arts, with little appreciation for the importance of science to modern life. It is generally expected that a good percentage of those getting doctor's degrees will emigrate. A good deal of fine scientific equipment has been supplied to Italy through the Marshall plan, and the Italian Government is making a concerted effort to develop good schools of science throughout the country. Italy is doing first-class work in nuclear physics and in chemical physics, but cannot be regarded quite so highly in most other fields.

Spain

On visiting Spain, one sees some elegant new laboratories and new equipment, but few results. Research funds are controlled largely through the Superior Council for Scientific Research under the Ministry of Education and are distributed to academic institutes in all fields of science, except agriculture. The major disciplines are grouped together into eight foundations, each of which is named after a famous Spanish scientist. Under each foundation come a number of institutes, each of which may be a laboratory but is more likely to be an administrative title to include a number of independent research laboratories.

Research in Spain is beset with many difficulties attributable in part to the poverty of the country. Salaries are low, trained personnel are scarce, outstanding laboratories are rare, teaching loads are heavy, scientific leadership and stimulation are limited, equipment and supplies must be imported, and maintenance and repairs of equipment are difficult. Unfortunately, the situation tends to perpetuate itself. Many of the more imaginative, ambitious, or talented individuals tend to leave the country. There are, however, a few gifted, devoted scientists who are able to make significant contributions.

Because of the low salaries it is customary for most of the academic staff to hold additional jobs. It is very difficult, even at the research institutes, to convince the technical personnel that their job there should receive their sole attention and that they should not try to hold down a second job in the afternoon or evening. This makes it all the more difficult to convince younger scientists that they should dedicate all of their time to research.

Other countries

Switzerland is somewhat self-contradictory. It is a country of magnificent industrialization but of relatively poor support for basic research in the universities.

Belgium, although good in many areas, is not of first rank in many, although again a few individuals are outstanding.

Yugoslavia is desperately poor, struggling under the handicap of a dictatorship and exhibiting the absence of free enterprise. Here again salaries are so low that almost all of the younger scientists must hold two jobs in order to earn a living. University enrollments in Yugoslavia are somewhat fictitious, since many students enroll, but do not attend classes, in order to permit their fathers to receive the government subsidy which is paid to heads of families with children in the universities. Class sizes tend to be extremely large. It is truly a tribute to some of the devoted scientists in Yugoslavia to see them fighting all odds to build within a system of restricted freedom the type of institution they know in their hearts they must have.

Eire is an overpopulated, tragically poor agricultural country with a total lack of organization for research. In the shadow of Great Britain it is a little surprising that more cross-fertilization and inspiration have not taken place.

Israel is diametrically opposite, and is the prime example of what an energetic, prosperous, and organized people can do in what is otherwise regarded as an area devoid of scientific achievement.

Science in Austria is tremendously handicapped economically, and although there are many excellent individuals, the country has suffered from virtual isolation since the war.

Eastern Germany also has been in isolation, but has responded somewhat differently. Although it has received no help from the U.S.S.R., and little aid from the West, the momentum of the great tradition in German science has given inspiration through these politically difficult years. In many instances one sees instruments developed in East Germany which are totally unlike those used for the same purpose elsewhere, and which represent the product of truly independent thinking.

Portugal has many of Spain's difficulties in scientific research, but has one considerable advantage. The advantage is the benevolent dictatorship under a constitutional monarchy which allows in Portugal far greater freedom and communication with the outside than will ever be possible under the present regime in Spain.

Comparisons

Perhaps one can learn some valuable lessons to apply in our own country from these observations on others. This is not to say that the European system is to be recommended, or that ours is not good, but it is hoped that we might glean some ideas from the best in theirs in order to add to ours, to achieve the most productive and inspirational research and educational program possible. The following remarks do not always apply throughout Europe, but describe the best features observed in certain specific instances.

In Europe generally, research funds are not project funds but rather institutional funds to be used for research in a broad area. This is an important freedom of action which should be encouraged in America. It greatly reduces the inefficiency of having to make individual detailed proposals and often repeated pleas for support, and of having to submit quarterly progress reports, rather than allowing published results to suffice. The inefficiency associated with project support is often appalling.

Research programs in Europe are usually thoroughly planned and well conceived before a great effort is expended. This is a situation somewhat enforced by necessity from the more austere budgets in general and by the fact that what is done must be well done in order that further support be forthcoming. The overriding criterion for continued institutional support is probably excellence of work. In the places where really great research is being done the scientists seem to be able to be less concerned with politicking, a disease somewhat associated with project funding.

The teaching load in European universities is usually very light. This allows the scientist the opportunity to do research in a less harried atmosphere. Many American teaching loads are from 4 to 12 times greater than European and are considerably more arduous per hour. In Europe, examinations are less frequent and are likely to be supervised by only a fraction of the staff, thereby freeing the others for research during these hours. The important point is that

in some of the best European universities the scientist is given the greatest possible amount of undisturbed research time, and this time is jealously guarded against any encroachments.

The European science student has been forced by necessity to do more for himself in the way of building up equipment. Certain countries prefer sending their students to Europe for training rather than to the United States because they feel that the students will return home with more fully developed skills than they would acquire here, where they would become accustomed to manufactured equipment. In a country where industrial equipment is available there are advantages in not building everything and using this time for more productive research. In the underdeveloped regions of the world it is best to have people who can build their own equipment.

The availability of a large number of fellowships in England has had a notable effect on science education and research in that country. This is particularly true at the postgraduate level, where a limited number of students are supported to do research for 3 to 4 years without any other obligations to distract their attention. This does a great deal toward giving a good young scientist the momentum he needs for the years ahead in his chosen career. At some European universities this scheme is further developed by appointing exceptional postgraduates to special research positions with a tenure of 5 years. The results at some institutions have been clearly recognizable in terms of Nobel Prizes and other outstanding awards.

In some of the larger European universities, the professor, as head of the department, has an administrative assistant who takes many of the burdens from his shoulders, by dealing with the scheduling of courses, showing visitors through the laboratories, preparing the budget, and so forth, thereby giving the professor more time for research. In a few European universities each faculty member has a full-time research assistant who is a regular member of the staff. If one suggests that in America teaching loads can't be reduced, that assistants can't be hired, that postgraduate fellowships can't be given, there is only a look of incredulity on the face of the European, who remarks: "but America is the richest country in the world!"

One knows that if one were to hire a graduate Ph.D. scientist from some of the European countries one would be extremely unlikely to get a poor product. From a few countries it would be difficult to get an outstanding graduate, not because of a lack of intellect, but because of a deficiency in training. In America the situation is far from uniform. The greatest disadvantage of European graduate programs is the nearly total lack of an organized curriculum, whereas in America we do a great deal in graduate school to make up for an accumulated deficiency in training throughout the secondary and primary schools. For the scientist in America, the deficiency in the arts and humanities is never made up. This should be an important sobering thought to our educators.

Another valuable observation would be the fact that certain geographically small countries, such as England, Sweden, and Holland, may well be proud of their distinguished records in science. One wonders whether this situation results in part from the fact that the universities in these countries are few enough in number that they can plan coherently. The needs and interests of all universities can be considered when plans and budgets are made.

In America, with many universities spread over a vast area, it is far more difficult to achieve coherency. Although it is contrary to the current trend toward more Federal support for education and science, it should be considered whether or not greater regional or State support is the more desirable thing. This is being done to some extent in such groups as the agricultural experiment stations, certain cooperative nuclear research projects, and so forth, but there is need for a great deal more of this cooperative type of effort. It would indeed be a stroke of wisdom if some of our State legislatures would support to the hilt certain local research institutes in a definite area of research, without the term "project funds" being mentioned and without the need for Federal subsidy. The practical solution is probably a combination of both Federal and State support.

The scheme in Great Britain for planning of budgets on a quinquennial basis has notable advantages and more inherent stability than the American system. This is probably related to a rather fundamental difference between the constitutions of the two countries, and our system is one that we have to live with. The on-again, off-again support of research in America is a situation which would be extremely unlikely to occur in Britain.

It is difficult to escape the observation that tradition is an extremely important motivating factor in yielding great achievements in academic research.

At the same time, tradition can retard progress. This is particularly true with regard to the inflexible faculty organization within the European universities, whereby there may be a single professor in a department who is overlord of all research and instruction within that department. Young men frequently must wait many years before they can teach or receive an appointment with tenure in the university.

Summary

Europe, traditionally the breeding ground for basic scientific research until the 1930's, is only now approaching full recovery from the devastating effects of the war. Great Britain has a more stimulating climate for research, a more progressive graduate school program, and a more flexible professorship structure than any other country of Europe. Germany still has several years to go before the effects of the war will be obliterated. In most northern European countries, the organization and support of academic research ranges from good to excellent, and a stimulating intellectual atmosphere exists. Germany is rapidly contending for the lead in basic research along with England and Sweden, which are now in the forefront. The Netherlands is typified by superb organization, and most of the Scandinavian countries are high in quality if not always in quantity of research. France is characterized by brilliant individual contributions but overall falls far short of her potential for scientific research. Switzerland, a highly industrialized country, is geared primarily for engineering and does not compete as highly on basic research as might otherwise be expected. Italian research is good in certain areas but is plagued by a number of difficulties that retard progress. Nevertheless, there are encouraging efforts being made in Italy to develop some good scientific programs. In the south of Europe the situation is generally discouraging and will continue to be so, except where a few dedicated, brilliant individuals are making good contributions with the meager resources available.

Europe will continue to be a tremendous scientific manpower reserve for the United States, and, despite accusations of proselyting, the fact remains that in many European countries the employment possibilities are not commensurate with the production rate of scientists and engineers. If the universities of Europe would realine the professional structure of their departmental staffs and extend their graduate curricula they would give far more opportunity to young research scientists and make better use of their facilities. America can indeed be grateful to Europe for a great cultural and academic heritage, and one can sincerely hope that close cooperation in science will take place for many years to come.

NOTE.—This article is not an expression of the official views of the Office of Naval Research.

B. A EUROPEAN SCIENTIST'S APPRAISAL

Senator HUMPHREY. As indicated earlier, the subcommittee has constantly sought frank evaluation of all phases of current international cooperation, both as regards strengths and weaknesses. It has sought constructive criticisms in order to be able to come to grips with actual problems.

One of the many scientists who supplied to us a critical evaluation of current research is the author of the following excerpts. We do not propose to try to evaluate his evaluation. It can merely be stated that we have heard somewhat similar analyses on the part of other scientists abroad as well as from U.S. scientists with foreign experience.

It should be noted that the subcommittee has raised a specific question as to whether training which the United States gives to European (or other) researchers will bear optimum fruit when these researchers return home in view of this fact: When the foreign nationals return to their home departments, they may not actually be given sufficient opportunity to utilize their heightened skills. The reason may be because of the type of deficiencies in departments which are alleged

in the following quotation. Whether this is actually the case, the subcommittee would not presume to attempt to state. It does believe, however, that in view of the fact that the taxpayers of the United States are making an investment in European and other research, we may well ask this question: "How can the researchers trained here best achieve maximum productivity when they return to their native lands?"

The great achievements of European medical research and medicine speak for themselves. Perhaps less discussed are limitations of European research. And this may apply to our own country as well. If progress is to be made by each country on its own initiative and in its own way, it should face up to its own limitations.

In the spirit, therefore, of free, friendly and constructive inquiry, the following excerpts are reproduced.

It may be noted that they come from a very distinguished scientist who has studied and worked for many years in the United States and in his own country. He has won deserved international recognition and has a very warm regard for Europe's scientific heritage. This subcommittee knows him as a scientist of the highest repute.

Excerpts From Memorandum

In general, one can say that Western Europe constitutes an excellent reservoir of manpower for medical research; there are a great number of educated and talented people and there is a long tradition of scientific work. On the other hand, compared to the United States and England, Western Europe has fewer men carrying out laboratory and clinical research. Furthermore, these men are not working as efficiently and do not produce as much as should be expected. The reason for all this is to be found in the defective organization of research prevalent in universities, hospitals, and laboratories. Briefly stated, medical research in Europe, compared to the United States, is characterized by great rigidity of framework and deficiency in creating channels for the exchange of ideas and in establishing contacts among research people.

Rigidity of framework in medical departments expresses itself by the abnormal permanence of staff appointments with very little turnover of scientific personnel at all levels, dictatorial power of the department chiefs, adherence to obsolete forms of internal organization and teaching, and extreme conservatism in considering modifications of the existing system. These traits of the European medicine are directly opposed to medical progress; people who are not qualified may maintain themselves in important positions and prevent qualified people from acceding to the higher posts. Too little or no responsibility is given the younger members of the department in planning research policies and hospital management; as a result, the possible benefit from their contribution is lost, they have the feeling of not really belonging to the department, and the chief is overburdened with work that his younger associates could carry out as well or better than himself. The adherence to obsolete conceptions prevents the expansion of hospital and research staffs as required by the continuous growth of medical knowledge and the development of medical specialties. Lack of money is an easy excuse for intellectual inertia; yet, as will be shown later, financial support will be necessary to break through these barriers. Teaching is often done by a small number of professors, each of whom has to cover a tremendously large field of knowledge which he cannot possibly have acquired by firsthand information. The younger associates have practically no part in teaching. Because of a provincial outlook in most universities and hospitals, there is no exchange of students and no possibility of obtaining training in different research institutions. While there are many symposia and meetings of international stature, these cannot replace the more profound confrontation resulting from the diversity of experiences during the training period.

These shortcomings would seem to be self-evident. Yet, there is a great reluctance in Western European scientific and hospital circles to consider possible modifications of the system. Part of the responsibility for this inertia comes

from the fact that the men in power, who could initiate these modifications, benefit from the present system and are not willing to change it.

The notable and sometimes brilliant achievements of European medicine, despite the system under which it operates, are a tribute to the quality of the scientific personnel in this continent and a justification for the attempts at improving the existing conditions.

Method of improving existing conditions

In view of the foregoing considerations, American support of European medicine should aim at producing a change in the attitude and philosophy of research and teaching. This could best be done by selecting one or several existing institutions in Western Europe and organizing them into model institutions through the American aid program.

VI. Views of Ministers of Health and Other Health Officials on International Medical Research and Assistance

Senator Humphrey. Of all U.S. Government agencies which our subcommittee has contacted, the overwhelming proportion of our contacts has naturally been with the Department of Health, Education, and Welfare.

Secretary of Health, Education, and Welfare Abraham Ribicoff has given us outstanding cooperation, as have the various component organizations of the department, notably the Public Health Service.

HEW's opposite numbers abroad, i.e., Ministries of Health, have likewise been our principal source of contact on both international medical research and international health assistance.

EMERGING NATIONS WROTE ON ASSISTANCE PROBLEMS

Each Minister naturally tended to respond in accordance with the basic interests and highest priorities of his own nation. Ministers of most of the emerging countries, for example, concentrated, quite understandably, on problems of cooperation in medical assistance.

I believe that it will be useful to reprint several messages herewith from foreign Health Ministries.

Australia

Department of Health,
Canberra, July 3, 1959.

Dear Senator: I refer to your letter of March 25, 1959, in which you pose the question, "What should the U.S. Government do in order to help speed the conquest of killing and crippling diseases like cancer, cardiovascular ailments, and the like?" and I would hasten to express my appreciation of your consideration in addressing your question to the various governmental health authorities of the nations of the world.

It is quite obvious that the secret of the speedy conquest of these crippling diseases lies in the provision of sufficient funds to back any campaign of research and treatment.

It is also quite obvious that much of the problem is common to all nations and that therefore the idea of cooperation amongst the Health Ministries should be eagerly sought. It is probable that in each nation there is one or more research institutions backed by the financial assistance of the Government or by public support and it would seem that the basis of further research and cooperation must be through these already established institutions, many of

whom are already endeavoring to enter the particular fields in which you are interested.

In my own country, there is a very active and able National Health and Medical Research Council supported by all facets of the medical profession and controlled under my chairmanship by representatives of the Royal Australian College of Surgeons, the Royal Australasian College of Physicians, the Royal College of Obstetricians and Gynaecologists, the College of General Practitioners, the medical profession in general, the dental profession, and representatives of the various medical schools in the Commonwealth. There are in addition a number of other research institutions of good standing such as the Hallstrom Cardiological Research Institution of the Royal Prince Alfred Hospital, Sydney, the Child Health Foundation, the Cancer Foundation and the Medical Research Foundation. All of these have ample research facilities limited only by their financial resources.

In addition to these problems which are common to the whole of the world, Australia is in the particular position of showing the highest prevalence of skin cancer in the world, currently regarded as due to the high exposure to sunlight in this country. While it is true that much research has been done in this subject and much progress has been made, there is no doubt that there is much more to be learned and that the field of skin cancer provides a wonderful opportunity for investigation into the general problems of cancer. It might be therefore that for Australia the special task in your overall worldwide assessment might be research into skin cancer and its place in the general fight against cancer. I have given these general thoughts to indicate what might be the pattern of research and help provided by your subcommittee. Should you require more detailed information or concrete ideas along the lines of which research could be followed, I would be glad to provide them.

Yours faithfully,

A. J. METCALFE, *Director-General of Health.*

CAMBODIA

[Translation]

MINISTRY OF PUBLIC HEALTH,
Cambodia, December 1959.

MR. SENATOR: I have the honor to acknowledge receipt of your memorandum dated May 27, 1959, and also of a report, the fourth one of your series of publications, praising the World Health Organization.

I take this opportunity to express my most sincere thanks for the transmittal of this splendid report which I highly appreciate for its very objectivity of view, of judgment on the general factors of the worldwide problems of health and on the history of the World Health Organization—on the results already obtained and on the goals it wants to attain in the interest of humanity.

Concerning the questions relative to problems and opportunities of international medical research and also of international medical assistance, I have the pleasure to transmit our opinion as to the public health problems arising in our own country, as follows:

These problems are not new or unknown to the other nations. They are problems that the United States has already solved, or more or less solved, or in the process of solving. They are problems which are the concern of the World Health Organization. Thus, among the diseases that our services have to face are, in order of importance: malaria, intestinal parasitism, waterborne diseases, tuberculosis, venereal diseases, trachoma, etc.

With the valuable advice of USOM's experts, we realize how important disease prevention is and thanks to international aid, and to the aid of your great and generous country in particular, we have been able to realize—or hope to realize—a very noticeable progress; thus we are now taking action against malaria, which is a secular enemy of the Cambodian people, and we think that we will very soon enter into the eradicating phase. We have completed our first campaign against tuberculosis with BCG inoculation. We have also started a campaign against yaws, trachoma, and thousands of people were relieved of these diseases. But this campaign was not very efficient because of the lack of means and because it was not rational enough. Recently we began, on the advice

of World Health Organization experts, a radical fight against yaws. In order to improve health conditions we make every effort to supply towns with sufficient potable water. Our Health Education Service is promoting the installation of sanitary wells, encouraging the populace to keep clean dwellings, to drink boiled water and to make a daily habit of these, etc. We are founding a maternal and child health service which includes school health. Moreover, we are establishing a rural health center.

I only point out the few problems to which our actual efforts are directed in collaboration with international organizations and ICA, considering personnel facilities and resources which are actually available. Of course, we have to face many other problems like tuberculosis, venereal diseases, cancer, heart diseases, etc., against which we do not anticipate any project due to the lack of means.

What are the obstacles which actually prevent international cooperation in Cambodia and how can we overcome them?

This is a very delicate question. There is an obstacle not only of theoretical or ideological order to international cooperation profitable to our people, but on the practical side, our lack of qualified technical personnel does not allow adequate coverage of many fields. Following the political independence of our small country, we have had to face many urgent and important problems. We are seeking foreign aid to help us resolve all those problems, but simultaneously, we accept this aid and this international cooperation only if it is compatible with our recovered independence and liberty. International cooperation is wanted but due to the present situation and the present atmosphere it will be received with discretion; any bilateral aid given unconditionally is always highly appreciated. In our activities, in order to improve conditions of life of our compatriots, our principle is that economic development and improvement of social conditions are closely connected and therefore must be considered in conjunction with one another.

Thus any international cooperation liable to interfere with this balance will be, on the practical side, an obstacle to us, while any international cooperation which helps to improve our conditions with respect to this balance will be greatly desired.

For example, the action taken against malaria in Cambodia is an example of cooperation between the Cambodian Government which provides personnel and assumes part of the operating expense, the World Health Organization which provides assistance (malariologist, entomologist, advice on operation's plan), and ICA which provides funds for buildings, for the purchase of equipment and medicine as well as for a substantial part of the salaries of personnel which our national budget is not yet able to provide for. During the beginning functioning years, the aid granted by ICA covered almost the entire project. This aid decreased progressively afterward. It gave us the opportunity of starting this project and then continuing slowly, substituting our efforts and our resources for those of the World Health Organization and ICA.

The understanding which is the basis of cooperation in the action taken against malaria is efficient because it has a definite goal but if during the initial period ICA had not provided sufficient funds for the purchase of DDT, medicine, cars, and for the payment of salaries, we then could not have envisaged the energetic and broad action that is now being taken in Cambodia. We would have remained on the defensive.

Now, thanks to international cooperation, the action taken against malaria has become evident in Cambodia, a great decrease in malaria disease has been noted and hence improvement in development and economic conditions has also been noted. This will allow us, with some difficulties, to continue the disease eradication project and in the near future to start one after the other on more projects.

Another example: action against tuberculosis is another problem for our country.

To take a rational action against the disease, we need specialists, funds to pay for buildings, various equipment and material and all types of personnel. It is obvious that action against tuberculosis is a very important social action, a highly humane task which may have a salutary influence on the economy. But for this, doctors have to be trained to become specialists and we do not have enough of them; funds are necessary to face various expenses and salaries, etc. We cannot undertake this unless we are previously insured that our

economy will allow us to carry through the action. Supposing aid would be granted concerning this action, we must be certain that this aid will be sufficient to cover the training of personnel, to pay the operating charges—and this during a period long enough to give time for our national budget to take over later on salaries and other expenses connected with this project.

The above examples show that a very good and understandable idea may, on the practical side, be useless because, unrealizable in the near future, it does not conform with our plans, with priority requirements of our country and of our people.

While admitting the usefulness for such a "year," we are not favorable to the organization of an International Medical Research Year; we think that it is too early for us and that it would scatter our efforts and those of the World Health Organization's efforts which have been admittedly insufficient, having regard for the many urgent social and political problems, the solution of which, long neglected, is the basis for the political stability of the country and its development.

Quite frankly, Mr. Senator, such is our opinion as to international research and problems of assistance.

I hope that it will help you, in some way, in obtaining an adequate and objective view of the assistance problems and international cooperation in the public health field.

Please be assured, Mr. Senator, of my highest esteem.

HOU YUON,
Secretary of State for Public Health.

CHILE

EMBAJADA DE CHILE,
Washington, July 6, 1959.

DEAR SENATOR HUMPHREY: I wish to refer to my letter of April 1, responding to yours of March 20, 1959, and to communicate to you translation of a dispatch received from the Chilean Ministry of Foreign Relations, transmitting the contents of a note received from the Ministry of Public Health of Chile, as follows:

"The National Health Service has analyzed with great interest the important problem posed by Senator Hubert H. Humphrey, relative to the contribution his country could make to the health program of the Americas, and the usefulness of broadening its scope.

"Chile has very serious health problems, the complete solution of which requires large expenditures that up to the present time do not seem easy to meet with our own resources.

"The lack of distribution of drinking water and in the installation of sewage-disposal plants in only the urban areas alone would require expenditures of not less than $100 million on the basis of estimates made by the Bureau of Sanitary Works.

"Medical service to the sector of our people who are completely without it today in Chile urgently requires a road-construction program.

"Enlarging the maternity-infant medical service would require the construction and equipment with appropriate personnel of perispherical clinics to serve centers of not more than 25,000 people.

"The orientation of the greater funds that the U.S. Government might assign to the health programs of America would amply benefit Chile if they are turned over to specialized organizations that could grant credit and advise in the solution of basic health problems, and actions to be taken preferentially for the prevention of disease.

"This Ministry should appreciate it very much if you would be good enough to transmit this information to our Ambassador in the United States, for the purpose of stimulating the very valuable initiative of Senator Humphrey."

With the assurances of my highest esteem and personal good wishes, believe me,

Sincerely yours,

WALTER MÜLLER, *Ambassador of Chile.*

ECUADOR

[Translation (Spanish)]

MINISTRY OF SOCIAL WELFARE AND LABOR,
Quito, July 31, 1959.

DEAR SENATOR: With reference to your kind communication addressed to this Ministry under date of May 27, 1959, I beg to inform you that in Ecuador the public health problems of greatest importance are the acute, transmissible diseases such as enteric diseases, malaria, acute pulmonary diseases, tuberculosis, etc. Therefore, I think that the field of public health in which aid might be extended most fruitfully would be in the fight against these diseases by way of provisions of environmental safeguards, such as the purification of water, purification of the soil, pure foods; and, in addition, financial support for the campaigns geared to the eradication of malaria, smallpox, and tuberculosis.

In the field of scientific research, it is considered that effective aid would comprise the facilitation of ways and means for the training of technical personnel at the different levels.

Very truly yours,

DR. MANUEL ORELLANO AYORA, *Undersecretary.*

EL SALVADOR

[Translation (Spanish)]

SAN SALVADOR, *August 21, 1959.*

DEAR SENATOR: First of all, I want to congratulate you and the committee over which you preside upon devoting special interest and time to the problems of world health, and, secondly, to thank you for your courtesy of requesting our opinion on these problems.

(1) Relative to the inquiry into medical problems, permit me to suggest an investigation of the frequency of toxoplasmosis, a disease which, in keeping with the source of infection and, possibly, receptors, should be very widespread, particularly in the Latin American countries.

(2) Relative to international aid, I beg to inform you that one of the principal causes in our country of morbidity and mortality are the so-called diarrheal and enteric diseases, which affect particularly children under 5 years of age. As the committee knows full well, this cause of morbidity and mortality is most frequent in countries lacking basic sanitation—quality and quantity of water and adequate facilities for excreta and feces disposal. Our country would gratefully accept aid consisting of equipment and materials (machinery for the digging of wells; pumps for wells; small-diameter galvanized-iron water pipes; large-diameter cast-iron water pipes and accessories; and small water tanks for use in the home).

(3) In El Salvador, malaria has been one of the chief causes of morbidity and mortality. Since the beginning of this century, commensurate with the technical know-how of the times and with the few available resources, efforts have been made to diminish or eliminate the tremendous social and economic ravages which that disease has wrought in our country.

Upon the advent of the insecticides a control program was initiated and, in 1956, in accordance with international technical resolutions, an eradication program making use of DDT and dieldrin was set in motion. In 1958 it was established that the agent responsible for the transmission of paludism (anopheles albimanus) in our country was resistant to dieldrin, and later it was proved that vectors resistant to dieldrin and DDT existed in four regions of our country.

In view of this biological phenomenon, the OSP, the OSM, in cooperation with the Communicable Disease Center of the U.S. Public Health Service, are now carrying on experiments with malathion.

The existence in our country of vectors resistant to DDT and dieldrin leads us to think that the prospects for the program are gloomy, both from a national and an international point of view. At the international level this problem of resistance is a very serious one, since our country is situated in the center of America and is traversed by international railroads, highways, and air lanes, which represents a potential danger for all neighboring countries.

In view of the seriousness of the problem, it has been thought that an irrigation program, to be put into effect in the coastal regions where there is resistance by the mosquito responsible for the transmission of the disease, would be a measure resulting in safety and twofold benefit. Irrigation would eliminate the transmitting mosquito in its larval stage, and would, in addition, rehabilitate land which is not being utilized at the present time because it is swampland, rendering its use for agricultural purposes impossible. Inasmuch as ours is a small country, irrigation would increase the proportion of arable land, and the disappearance of paludism would result in improvement in the economic situation of our country.

In view of the above, we request, by way of international collaboration and aid, the assignment to us of technicians for the purpose of effecting drainage and irrigation studies and thus rehabilitating the lost land. With such technical aid forthcoming, we believe that the Ministry of Agriculture, the Ministry of Public Health, and the landowners would be willing to finance the project worked out by the irrigation technicians.

Very truly yours,

DR. ALBERTO AGUILAR RIVAS, *Director General of Sanitation.*

FINLAND

WHO COMMITTEE FOR FINLAND,
STATE MEDICAL BOARD,
Helsinki, August 4, 1959.

DEAR SENATOR HUMPHREY: Let me first of all thank you for the very valuable work you have done for the promotion and activation of international medical research, a work which at the same time is aimed to and also will advance the health and well-being of all nations. * * *

As far as international medical research is concerned I would like to draw your attention to a drawback which in my opinion calls for rapid measures. It is well known that intensive medical research is carried out in different countries all over the world. This work is conducted by various organizations, foundations have been established to support it, etc. This being the case there is always the danger of doubled research work. Anyone versed in medical literature cannot help noticing the immense amount of doubled research work which always has been and still is performed in the field of medical and in all probability also other sciences. Of this I myself have good experience as former professor of anatomy and dean of the medical faculty at the University of Helsinki. Nevertheless, such overlapping can naturally never be entirely avoided, but on the other hand it is also clear that great economic losses are caused by the fact that scientists do not know what research work is or already has been carried out in each particular field. I myself have often experienced that when working on a certain research, a treatise on the very same or corresponding problem is published in some other part of the world which either nullifies my own work by rendering it less topical, or otherwise decreases its value considerably. For this reason and considering in addition the appreciable savings that could be achieved by avoiding doubled work and used in financing other scientific research, urgent measures should be taken to alleviate the present situation.

As far as I can see, adequate methods to prevent overlapping in the field of medical research could be found. International register centers can be established and made responsible for the registration of all research work in the different branches of medicine. By granting means to certain international laboratories or research institutes, these could be commissioned with the task of keeping a register on all scientific work carried out in the world in their respective fields of medicine. To keep the rosters of the register centers up-to-date, it is naturally inevitable that different institutes, i.e., their directors, send the relevant register center once or twice a year information on all research work that is being done in the institutes concerned. The information thus collected would then be published periodically by the register center or the scientists planning some research work in the relevant field would write to the register center and ask whether the research in question already has been carried out elsewhere and if so where it could be seen.

The establishment of only one register center comprising all medical research naturally can not be thought of. The registration should, therefore, be divided

according to the most general specialties so that a certain laboratory or research institute would agree to keep rosters for all research work carried out in the field of surgery, another in the field of internal diseases, a third one for ophthalmological research work, the fourth on gynaecological and perhaps also obstetrical research and so on.

The idea as such is not new. A register center of scientific research in the field of embryology is known to exist in Amsterdam and as far as I know it is operating on the lines described above. The significance of such activity to international medical research cannot be overestimated. Consequently, I for my part would regard the establishment of such register centers as one of the most important practical measures that should be taken for the promotion of international medical research.

Another sector of international medical research, which in my opinion has not been paid sufficient attention to, is concerned with public health work in the proper sense of the word. All that is done for the development of both preventive and curative health services is, of course, based on the needs of men. Consequently, research work for the clarification of these needs should be encouraged so that the quantity and quality of medical services required by the population in each country could be determined by health surveys, and if these needs are not met, reasons thereto found out.

The lack of health services in a country need not always be the reason why the health needs of the population are not met. Many other reasons may prevent the population from using the offered services, and therefore these things need clarification. Maybe these studies have been neglected because they are not directly concerned with diseases but rather with public health problems. Nevertheless, their clarification is of first-rate importance. It cannot be thought, either, that this problem is of no other than purely national significance. On the contrary this is one of the worldwide problems to be discussed and solved on international forums. As these surveys, as already was mentioned, are not directly connected with diseases, it is also more difficult to raise money for their financing, while this, in the case of research work regarding, e.g., the frequency and occurrence of some disease which naturally also is of great significance from the viewpoint of public health, is usually much easier. Therefore as much as possible should be done to encourage the former. This could be best done so that the national organs responsible for such research work would forward their plans for the surveys in question to the foundation or other center interested in financing them. After careful coordination of the plans and applications submitted by different countries, awards were granted to support the research work in question. Such surveys are very expensive because for their performance, among other things, a considerable number of personnel is required to visit patients at their homes.

In the field of international medical research preference should be given to these "social" public health surveys as they perhaps could be called.

As to my own country, it is self-evident that our possibilities to carry out extensive medical research cannot be compared with those of the big countries where good and large enough laboratories, adequate personnel and sufficient financial resources are available. This lack of material facilities is the more deplorable as the intellectual capacities necessary for scientific research can be great even in smaller countries.

Considering the possible objects of medical research in our country, it is true that certain groups of diseases are gradually transferred into history and that their significance has thus considerably decreased while the others are coming more and more to the foreground. Among the diseases of the latter group the cardiovascular diseases nowadays represent the major causes of death in our mortality statistics. The situation in Finland in this respect is particularly interesting, our country being one of those where the frequency of cardiovascular diseases is great and where, furthermore, the number of cases varies very much indeed in the different parts of the country. This is a feature which has often attracted attention also in connection with international research of those diseases, and the fact is that Finland, for the time being, participates in international research work in this field but naturally only to the relatively small extent our limited circumstances allow.

In this connection, I would also point out the increased and ever increasing number of old people which must be taken into consideration in the future planning of public health services in Finland as well as in other countries. Prolonged life expectancy is of no significance to man if he has to spend his old

age sick and incapable to work. Measures must be taken to keep the aged able-bodied as long as possible. The emphasis must then be on the diseases of the vascular system where the disturbances preventing old people from work most often appear. Preventive work in the field of cardiovascular diseases should, therefore, be encouraged to the greatest possible extent in the international medical sector. Means for the early prevention of certain types of cardiovascular diseases and also other related sicknesses should be found. In this respect we are not so helpless as is generally believed. On the contrary, there is sufficient evidence that if the first symptoms of a sickness caused by an aging organism can be detected early enough, the onset of the diseases can be postponed considerably or, in some cases, completely prevented. Thus, future international medical research should be concentrated just on these diseases.

Nevertheless, there are still in the present day many other even greater problems endangering the health of mankind, which should not be forgotten. These problems are not directly concerned with Finland but in the international sector they are of immeasurable significance. By this I mean, above all, those infectious diseases by which people in numerous parts of the globe still are plagued: malaria, leprosy, smallpox, and many others.

My intention is not to give here a comprehensive list of recommendations and understand that it was not expected from me either. However, I have tried to concentrate my attention very briefly on a few main problems, and shall be only too glad to submit more detailed proposals if you so desire.

Accept, dear Mr. Humphrey, the assurance of my highest consideration.

NIILO PESONEN,
Chairman of the WHO Committee for Finland, Director General of the State Medical Board.

GERMANY

BUNDEMINISTERIUM DES INNERN,
Bonn, June 30, 1959.

DEAR SIR: I acknowledge receipt, with best thanks, of your kind letter of March 25, 1959, contents of which I have studied with great interest.

I entirely share your view that it is of paramount importance for governments throughout the world to cooperate in research work regarding health problems of international significance.

May I mention that the Federal Republic of Germany has been a World Health Organization member state since 1951, and since that time has been actively engaged in cooperation with that organization. One of the aims of WHO, also, is to include in its program international medical research, considering that a methodical health policy can only be pursued on the basis of medical research.

Within the WHO European region, the Federal Republic is likewise engaged, at international level, in various health programs; therefore, in my view it would perhaps be more desirable to wait for the results of the cooperation between the organizations that have been engaged in this work for a number of years, rather than undertake new international projects.

Your booklet, "The Status of World Health," I have perused with particular interest. Despite the great variety of themes handled in that booklet, I venture to say that the problems in question are already included in our cooperation with WHO.

Once again thanking you for the interesting information kindly given me, I shall be pleased to be at your disposal for cooperation aiming at new problems.

Sincerely yours,

DR. DAELEN,
Governor and Medical Director.

INDIA

MINISTRY OF HEALTH,
August 21, 1959.

DEAR SENATOR HUMPHREY: Many thanks for your kind letter of March 25, 1959, with which you forwarded to us a memorandum and two U.S. Senate subcommittee publications about international health problems.

In India the Indian Council of Medical Research (formerly known as the Indian Research Fund Association) was established in 1911 with a view to

initiate, aid, develop and coordinate medical scientific research, to promote special inquiries and to assist institutions for the study of diseases, their prevention, causation and remedy. A copy of a publication entitled "A Review of Activities During the Years 1950–57" of the Indian Council of Medical Research is sent herewith. This publication shows in brief the progress made in the major fields of medical and public health research (including cancer and cardiovascular ailments) and also the program for the future.

We agree that for the speedy conquest of universal diseases like cardiovascular ailments, cancer, etc., there should be a coordinated approach in the study of these problems in order to understand the basic mechanism underlying these diseases and the reasons why different manifestations occur in different countries in the same diseases. Such a coordinated study can be undertaken by a free exchange of information between research workers in these fields throughout the world, particularly by making available to them the results of researches conducted in different parts of the world. It is only such basic studies that can really provide the necessary material for the conquest of those diseases within a reasonable period of time. We fully endorse your views that no barriers of nationality, ideology or culture should interfere with humanitarian efforts to ease pain and suffering, disability and premature death. In what ways the U.S. Government can assist other countries in this matter is obviously for your Government to decide.

With all best wishes,

Yours sincerely,

D. P. KARMARKAR.

REPUBLIC OF INDONESIA

MINISTRY OF HEALTH,
Djakarta, September 9, 1959.

SIR: It is with great pleasure that I learn about your assignment as chairman of a subcommittee of the U.S. Senate. I am particularly interested in the review you are making as regards to international medical research in order to alleviate pain and suffering among peoples of the world.

In relation to your memo H–3–12–59 I would like to reply to some of the questions referred to in that memorandum.

The particular major health problems in my country are still the fight against communicable diseases which are next to the spreading of good health habits in the field of nutrition, environmental sanitation, and mother and child care. Besides there is a growing effort in providing sufficient curative medicine with regards to medical personnel, hospitals and pharmaceutical supplies. My country has embarked upon a 10-year malaria eradication program. Other programs are those of tuberculosis control, yaws control, smallpox control, leprosy control, control of waterborne diseases, plague control, control of eye diseases, and the Health Department has established mother and child health services and epidemiological and port health services. It has set up demonstration areas for rural health, mental health, school health, health education, and dental health, while filariasis control, vital and health statistics, public health legislation, and occupational health have been started. The Nutrition Institute has gained great importance; it has the Curative Medical Division, the Institute of Radiology and the Medical Supply Division.

My country shares with neighboring countries the problems of combating communicable diseases, as, for instance, malaria, smallpox, tuberculosis, and waterborne diseases, as well as the problems of nutrition, environmental sanitation and maternal and child health. Our countries lack qualified medical personnel, hospitals, and medical supplies.

Malaria eradication, smallpox eradication, immunization against communicable diseases and sharing epidemiological evidence is a joint effort between neighboring countries in the region.

Specific cooperative projects might be undertaken during the proposed International Health and Medical Research Year, such as organizing particularly for communicable disease control, environmental sanitation and international medical research. These large plans have made us favor the proposal to hold the International Health and Medical Research Year in 1961.

Yours sincerely,

Col. Dr. SATRIO, *Minister of Health.*

JORDAN

MINISTRY OF HEALTH,
Amman, August 6, 1959.

DEAR SIR: With reference to my letter No. 44/21/5951 dated May 18, 1959.

I have the pleasure in forwarding to you herewith the findings of the committee which I have appointed to study the questions mentioned in your letter dated March 25, 1959.

I hope the information contained therein is satisfactory.

Yours sincerely,

DJ. F. TUTUNJI, M.D.,
Minister of Health.

AMMAN, *July 28, 1959.*

His Excellency,
The Minister of Health.

Reference your letter No. 44/21/5865 dated May 16, 1959.

The committee formed in accordance with your Excellency's instructions held its meeting on July 28, 1959, and recommends the following:

The Ministry of Health in the Hashemite Kingdom of Jordan approves the suggestions of the Honorable Hubert H. Humphrey, concerning the scientists' cooperation in the scientific research, and favors your assistance in the medical field.

There are no institutions at present in Jordan which deal with scientific research in health fields, but there are medical laboratories where all routine laboratory examinations are performed as well as hospitals and dispensaries to control disease prophylactically and therapeutically.

The Department of Vital Statistics has been recently established, thus we regret to be unable, at the time being, to supply you with accurate figures which we trust will be available in the near future.

The Ministry of Health favors the idea of the proposed International Public Health and Medical Research Year, and is ready to participate in it and to cooperate by all means to make it a success. The Ministry of Health desires to receive financial and scientific assistance such as experts, fellowship grants, and exchange of scientific medical literature, in order to raise the standard of health in Jordan.

His Excellency, the Minister of Health, will participate with pleasure in writing detailed articles in the communications of the U.S. Senate committee about the health problems in Jordan. This committee is fully cooperating with WHO, USOM, and UNICEF in an attempt to raise the standard of health in Jordan and extends its thanks to these institutions for the assistance rendered in this field.

Please accept, Excellency, the assurance of our highest consideration.

Dr. GHALEB QUSSUS,
Director of Surgical Section.
Dr. HEIDER HUSSEINI,
Director of Laboratories.
Dr. RAGHEB EL-KHALIDI,
Director of Blood Bank.

REPLIES FROM KOREA

Senator HUMPHREY. One of the nations which has supplied information in greatest detail to our subcommittee is the Republic of Korea.

Through the cooperation of the Korean Embassy in Washington, and the Minister of Health, Chang Whan Sohn, M.D., several comprehensive reports were made available, including one special publication 73 pages long.

This publication, which is an excellent guide to health problems in Korea, described present programs of health, education, medical care, dental health, maternal and child health, environmental sanitation, communicable disease control and other phases. It presented, moreover, a detailed application for international medical assistance, par-

ticularly through a leprosy control program. Korea, in addition to all of her many other problems, faces a severe problem of incidence of leprosy among her citizens. The proportion of the national budget spent for this one disease is approximately 50 percent of the entire health budget in the nation. Leprosy has a profound effect on the economy of the country and on the enterprise of the people. It is estimated that there are around 100,000 persons clinically ill by leprosy infection. This Korean report, like other reports which have been received, is invaluable for the subcommittee's review. We could not, of course, attempt to reprint the report in its entirety. I have selected but two pages of the report bearing upon Korea's proposal for international medical research cooperation on Japanese B1 encephalitis and on hemorrhagic fever.

These pages are preceded by letters from former Ambassador to the United States Dr. You Chan Yang and from Dr. Sohn in Seoul.

EMBASSY OF KOREA,
Washington, March 30, 1959.

DEAR SENATOR HUMPHREY: I have your letter of March 20, 1959, telling me that the Senate subcommittee of which you are chairman is particularly interested in the challenge of coping with widespread diseases in the underdeveloped countries.

As a physician and surgeon, I am tremendously interested in your committee's work. My country and my people, due to the Communist aggression and a most devastating war, went through a most horrible ordeal in order to survive—without food, clothing—and suffered much from exposure to the elements. Naturally, this left them in a very weakened condition, and besides they were forced to live in crowded rooms. This led to widespread tuberculosis and other allied diseases. Tuberculosis and leprosy are the two main menaces to health and preventive measures are much needed in Korea today. Any assistance given will be the most humanitarian thing one could do.

You will be interested to know that the three Scandinavian countries have sent out over 90 of their personnel to Seoul to man the National Medical Center. They are caring for over 128,000 patients free per year. Medical research work in Korea is very sorely needed, and the means to do extensive research in all fields of medicine would be very welcome.

I happen to know your project director, Mr. Julius Cahn, very well, and as I said, since I am a physician and surgeon, I am doubly interested in sitting down to talk with Mr. Cahn at any time that is mutually convenient.

May I take this opportunity to congratulate you and your committee on such an humanitarian undertaking throughout the world.

Sincerely yours,

YOU CHAN YANG, *Korean Ambassador.*

MINISTRY OF HEALTH AND SOCIAL AFFAIRS,
Seoul, Korea, September 7, 1959.

DEAR MR. HUMPHREY: I am happy to receive your letters of March 25 and May 27, 1959, regarding the international medical research and assistance program which was proposed by your committee.

Upon receipt of your letter, I have forwarded the project proposal by the Republic of Korea through our diplomatic channel which I hope you have already received.

As for the comments on the second letter, the most leading problems of diseases in Korea are the control measures against leprosy—both treatment and preventive measures. The second leading problem is the Japanese B. encephalitis, the incidence of which is very high during the summer months and for which not much research has been done. The obstacles for the effective control measures against the above diseases are due to the insufficient funds and research. Therefore, I have already requested you for the assistance on the radical solution of this critical leprosy problem in Korea.

I sincerely wish you would visualize the urgency and importance of the control of this dreadful disease—leprosy—and render us the assistance.

Looking forward to your favorable consideration, I remain,

Sincerely yours,

CHANG WHAN SOHN, M.D., *Minister.*

EXCERPTS FROM PUBLICATION PREPARED BY KOREAN MINISTRY OF HEALTH

II. INTERNATIONAL MEDICAL RESEARCH PROPOSAL

1. *Japanese B. Encephalitis.*—Japanese B. encephalitis is one of the most dreadful acute communicable diseases in Korea. As the high incidence of this disease is shown in enclosures, the peak of epidemic is seen every 3 years with the mortality rate ranging from 25 to 50 percent.

According to findings of Dr. Sabin of the United States, it is believed that approximately 90 percent of the population in endemic area has shown the inapparent infection with Japanese B. encephalitis. Even though epidemiology of this disease is at present being studied by the health authorities and the university faculty members, the concrete data have not yet been obtained.

At present, though mosquitoes such as Culex pipiens and Culex tritaeniorhynchus are known to be the vectors, yet more research should be done on determining the vectors, together with their ecology, bionomics, etc., and more study should also be made on the virus, vector, and sources of infection.

The control measures have been taken by the Government by applying the domestically produced vaccines to the limited population, but the result has not been scientifically proved. Therefore, the overall research on epidemiology, virus, vectors, reservoir of infection should be carried out with the assistance of the proposed U.S. National Institute for International Medical Research.

2. *Hemorrhagic Fever.*—The first cases of hemorrhagic fever to be recognized in Korea were among American troops in the spring of 1951. At that time, the prewar population of the endemic area had fled and, until 1954, there were virtually no civilians in those areas where American troops were known to be contracting the disease. In 1954 the disease occurred among Korean settlers in epidemic form and ever since that time the sporadic occurrence of the disease was reported.

The attack rates of the disease were 1.4 to 1.7 per 1,000 of either American or Korean population. The disease characteristically occurs in spring and fall every year with considerably high case fatality rate.

Although many studies were done to find out the nature of the disease, the etiology and epidemiology of the disease are not answered yet. Most probable mode of transmission was speculated that trombiculoid mites transmit the disease when they are in larval stage. Yet no scientific proof was obtained in this regard. The causative agent was thought to be the virus; however, this also awaits the further study. As to the reservoir of the infection, there is no scientific answer to solve this vital question.

It is therefore proposed that the research project be initiated by the fund provided from the proposed U.S. National Institute for International Medical Research.

LEBANON

[Translation (French)]

MINISTRY OF PUBLIC HEALTH,
Beyrouth, August 20, 1959.

DEAR MR. CHAIRMAN: I have the honor to acknowledge receipt of your letter of March 25, 1959, and of the circular addressed to the ministers of health, as well as of two copies of your committee print, and want to thank you, especially for the confidence which you have placed in me.

I appreciate the great efforts which you are making toward putting an end to certain devastating diseases such as cancer, heart diseases, etc. I can only praise your motion which calls for a united effort toward the exchange of scientific data among the different nations, a united effort, for the benefit of all mankind.

In this connection, we shall be happy to establish an exchange of medical knowledge between the USA and Lebanon, consisting of making available, on a reciprocal basis scientific periodicals and bulletins.

We hope that the Senate bill, which provides for the establishment in the United States of a National Institute for International Medical Research, becomes a reality. The institute, to be sure, will aid in implementing special international research projects, but it would also enable Lebanon to proceed, at the local level, to perform scientific work, in particular, in connection with cancer, nutrition, and virology, and thus to participate in the general collaboration in this field of medical research.

Furthermore, we accept the proposal of a World Health and Medical Research Year, which was approved by majority vote in the U.S. Senate.

With a view to strengthening the cooperation of scientists and researchers, there is nothing more useful, in our opinion, than the exchange of knowledge among them, locally and globally. In order to do this, it is very important that the necessary funds should be provided to that effect, especially with a view to holding congresses and financing fellowships for study and specialization, for the benefit of the countries on the road toward scientific development.

As regards the promotion of collaboration among the ministers of health of the different countries of the world, your regional organization will take charge, while the WHO will act as a liaison agent between them.

In relation to international health problems, although the form in which they emerge in Lebanon has not been serious, every necessary effort is being made to solve them in the best possible manner. Poliomyelitis, trachoma, tuberculosis, gastroenteritis, etc., are being actively fought at the national level and, sometimes, with the collaboration of other countries.

As for the problems which are common to Lebanon and its neighbors, they may be summarized chiefly in sanitation problems—potable water, disposal of refuse, sewers, environmental and personal hygiene, nutrition, health education, and mother and child protection.

As you see, there are so many vital problems in the field of public health, and it is important that Lebanon should benefit from the experience, know-how, and financial resources of your regional commission, as well as from the results of its international collaboration in order not only thereby to find a happy and salutary solution to its own problems, but also thus to contribute actively in the collective global effort toward promoting health and social welfare in all countries of the world.

Please accept, dear Mr. Humphrey, together with my thanks in advance, the assurance of my high consideration.

PIERRE GEMAYEL,
Minister of Public Health.

NEW ZEALAND

THE NEW ZEALAND MEDICAL RESEARCH COUNCIL,
Wellington, New Zealand, July 17, 1959.

DEAR MR. HUMPHREY: I beg to acknowledge your letter of February 19 with the welcome proposals for closer cooperation in medical research. I have delayed my reply until I could secure the comments of research workers in different parts of New Zealand. I have now received these reports and after conferring with the executive of the New Zealand Medical Research Council now submit the following replies to your two basic questions and to the sample ones.

The Conquest of Universal Diseases.—In the fight against this group of diseases reflecting so clearly the shift in the age distribution of the populations of the countries of western civilization, consequent on the decline in the death rates in the earlier age periods, is the result of more than 25 years steady improvement in social and environmental factors. It is difficult to suggest how progress can be substantially accelerated. Research in those diseases of complex etiology is active and an increased tempo can be best secured by intensifying the work already in progress, particularly in the field of fundamental research. No "breakthrough" is yet evident in any of these diseases to which we might add the existing prevalent and disabling group of the so-called collagen group. The availability of experienced research workers of high caliber, with new ideas, is always the limiting factor in securing the knowledge of causation essential to a speeding up of improved methods of control.

Assistance to Developing Nations.—There can be no doubt that much more effort is required to assist the developing nations of the world. New Zealand has accepted this challenge in her own area of influence in the southwest Pacific region and has been working with some success in this field since 1918. In 1948 our Council decided to intensify our research program in Samoa, the Cook Islands and Niue. In 1951, a full-time tropical research officer was appointed to work under the auspices of the Council in collaboration with the medical authorities of the islands and the University of Otago Medical School in Dunedin, New Zealand. I am posting you a copy of a report of the research carried out between 1948 and 1953 which indicates what has been done. At the moment Dr. McCarthy, our research officer, is embarking on a pilot campaign in the Cook Islands to control filariasis, based on the Tahiti scheme sponsored by the University of California working with the French administration. We are in close personal contact with Dr. Kessel who is directing the latter campaign. It is our intention, as finances permit, to continue this work throughout the area and ultimately to extend it to the whole field of preventable disease. When these objectives are secured, we would hope to be able to give some assistance in regions beyond our present area of responsibility.

It is worthy of mention that New Zealand, under the Colombo plan, has already given substantial medical help to countries of south and southeast Asia by sending staff members on short tours of duty to these countries and in providing training courses in New Zealand for selected teachers.

The World Health Organization and the South Pacific Commission, with its headquarters in Noumea, are also working in this area but the World Health Organization confines its activities to the training of workers and pilot demonstrations of disease control, while the South Pacific Commission's medical research activities deal with only certain limited aspects of the main medical research problems within its vast sphere of influence.

With reference to your sample questions:

1. Our reactions are those of sincere admiration for the work already in progress sponsored by the U.S. Government. The record of accomplishment in your valuable monograph on international medical research is most impressive. We are particularly indebted to the Public Health Service's National Institutes of Health at Bethesda for the generous research fellowships in which we have participated. We have no knowledge of any specific weaknesses.

2. The major directions in which we consider medical research and cooperation could be accelerated are:

a. Improving the quality, training, and efficiency of workers at present engaged in research activities.

b. Strengthening the exchange programs on a person-to-person basis for we hold the view that there is no real substitute for the stimulus of personal meetings of workers engaged in the same tasks. The recorded work is but a cold substitute for these personal contacts. What we envisage is not the encouragement of travel through groups of research units but rather the securing of two-way traffic between research workers on specific projects, the idea being for the visitor to stay and work in one place irrespective of country for the length of time requisite for collaboration.

New Zealand, on account of its remoteness and the high cost of overseas travel by air, is particularly handicapped in this respect. There are no regular appropriations for the payment of travel expenses of medical research workers either to or from New Zealand and special grants are difficult to obtain. The Fulbright fund has been of great value to New Zealand in other fields but it does not meet the special needs of medical research workers.

The above statement applies equally to improving symposia and seminars which are of undoubted value. The abstracting and translation programs give a reasonable coverage of the research material of the non-English speaking countries with the notable exception of the Soviet Union. Here the Iron Curtain still separates research workers from effective collaboration with the Soviet Union. The language component of this barrier is most important and we feel that an efficient abstracting service with a translating service would be of particular value in this neglected field. Ultimately we would hope for closer personal collaboration but this can only come gradually.

Dr. McCarthy, our island territories research officer, has however no laboratory accommodation within the islands themselves and has his headquarters in

the Otago Medical School. If the full strength and activity of many of these scattered research units could be better integrated in some form of loose federation within some international research agency from which they could draw assistance and status while at the same time preserving their territorial affiliations and associations, efficiency would be increased. We would particularly like to secure laboratory accommodation for our research activities within the islands themselves.

3. The other principal obstacles to expand world medical cooperation lie mainly in the minds of men themselves but as this century advances it is clearly evident that narrowness of view is being steadily overcome.

Yours sincerely,

JOHN CAIRNEY,
Chairman, Medical Research Council.

PHILIPPINES

DEPARTMENT OF HEALTH,
June 16, 1959.

DEAR SENATOR HUMPHREY: Thank you for your thoughtfulness in soliciting our comments on Senate Joint Resolution 41 which contemplates the establishment of a $50 million U.S. National Institute for International Medical Research, and on several questions relative to international cooperation to combat such degenerative diseases as cancer, cardiovascular ailments and the like.

We sincerely believe that your great and good Government can do much to stimulate interest, generate action, and render assistance to researches and other activities in the subject fields. The idea of setting up an international institute for medical research should receive full encouragement and support.

It is felt that the United States, which has consistently expressed its concern for the upliftment of humanity everywhere in various ways, can, through its present International Cooperation Administration and related governmental and private agencies, further foster the development of medical research by inviting leading specialists in every discipline to serve in the proposed center. It could also be useful as an Institute for development of medical scientists and as an observation center to assist trainees in the medical, public health, and allied fields. Your ICA projects in our country, for instance, are now benefitting greatly our people in the fields of economic development and public health. It would, indeed, advance the cause of world peace and good health if your center can pool together the best minds and skills of our world.

We have in our Department of Health organization a Division of Cancer Control which has to be activated yet pending further arrangements with the World Health Organization. A civic Philippine Cancer Society, formed sometime ago, now operates a diagnostic center in Manila and is embarked on a program of information and education to awaken cancer-consciousness among our people. There are now two cobalt units being operated. But we feel that all these are still inadequate to cope with the vast problems involved in cancer education and prevention. We are likewise interested particularly in the educative and preventive aspects of medical efforts with reference to cardiovascular ailments and other degenerative diseases which are now receiving medical attention in our private and public hospitals. Research and training that would help us along the lines aforementioned would serve our national interests soundly, and help make our people a strong member of the world community.

Special diseases are the subject of efforts of our Bureau of Disease Control, which tackles tuberculosis, malaria, leprosy, mental illness, cancer, etc., from research, preventive and educative, through administrative to curative functions. Collaborating in this great task are our other bureaus, such as those of the Bureau of Health Services, Bureau of Medical Services (Hospitals), and the Bureau of Research and Laboratories. Our Bureau of Quarantine, of course, attends to quarantinable diseases, and guards our country from incursions of diseases from foreign sources.

We would favor an International Public Health and Medical Research Year. In fact, upon assumption of my present duties on July 23 last year, I publicly stated that the cornerstone of my administration of our public health service would be research. We have also embarked on a revitalized environmental sanitation program as a basic move toward further improving national health conditions and building up a sturdy citizenry.

We hope that you would communicate with us again should your bill under consideration prosper, so that we may, in spite of our modest means, somehow participate in your noble plan to aid peoples of our world.

With my best wishes for your continued good health and success, and our warm greetings to the people of the United States, I am

Sincerely yours,

ELPIDIO VALENCIA, M.D., *Secretary of Health.*

SUDAN

MINISTRY OF HEALTH,
Khartoum, July 29, 1959.

EXCELLENCY: Reference your letter dated March 25, 1959. Insofar as I am concerned; my personal suggestions are as follows:

(1) Building of a Cancer Center in Khartoum and equipping it with all the necessary equipment for treatment.

(2) Establishing a Research Center in Khartoum where actiology, causes, and treatment of endemic diseases may be investigated.

(3) Training of Sudanese in research. This may be done by sending qualified personnel for postgraduate courses in United States of America, or qualification on short visits.

Yours sincerely,

M. A. ALI, *Minister of Health.*

MINISTRY OF HEALTH,
Khartoum, August 11, 1959.

EXCELLENCY: Thank you very much indeed for your letter of August 3, 1959. I beg to elaborate on my suggestions:

1. Cancer Treatment Center

The number of notified cases of malignant tumors in the country average 1,000 per year. There are no local facilities for treatment, except for ordinary surgical removal. The Government sometimes encourages certain cases to go abroad for deep X-ray or isotopes therapy.

If a treatment center is established in the country, there will be saving in human life and in money. Local treatment facilities will also lead to prompt notification and to better method of diagnosis and treatment. The average number of cases will consequently increase.

Our requirements in this respect are: (*a*) building of a center in Khartoum Hospital; (*b*) equipping this center with modern equipment; (*c*) the center has to be staffed by experts from the United States until the national counterparts are trained in your country; this means that you may kindly offer fellowships to Sudanese doctors and technicians for training in the United States.

2. Establishing Research Center in Khartoum

What I have in mind is a center like the NAMRU 3 in Cairo, where research in endemic diseases, peculiar to this country, may be investigated. The center will also be a medium for our research workers to cooperate and learn. Other details, I should think, may be discussed with your personal representative, a member of the U.S. Embassy, or a member of the ICA in Khartoum.

3. Training of Sudanese in Research

This has been partly dealt with in the above two paragraphs; but I would like to add that there should be a laid-down policy for sending Sudanese doctors, health workers, and other technicians to the United States either for higher qualifications or on short visits for training and contact with your research workers. This fellowship system should include surgeons, physicians, obstetricians, health officers, sanitarians, etc.

I would suggest two from every category annually for higher qualifications in your universities (3-year course) and two from senior staff in every branch to go to the United States for a short visit (6 months). Transport, subsistence, fees, and other sundries may kindly be borne by you.

I hope I have given you an explanation for your queries.

May I thank you wholeheartedly for your interest and cooperation, the outcome of which we look forward to gain in the very near future.

Yours sincerely,

M. A. ALI, *Minister of Health.*

THAILAND

MINISTRY OF PUBLIC HEALTH,
Bangkok, February 2, 1960.

DEAR SENATOR HUMPHREY: With reference to your letter dated March 25, 1959, asking for my personal views on the subject of international health and medical research, I feel highly honored to have the privilege to offer the following comments for your consideration:

1. International Health and Medical Research Year

The Ministry of Public Health is deeply interested in international cooperation to improve the health of all peoples and agrees in principle that the organization of an International Health and Medical Research Year would be very useful to all nations. However, owing to the existing heavy commitment of national effort to the control and eradication of malaria, yaws, cholera, smallpox, tuberculosis, leprosy, etc., it is doubted whether the Government of Thailand would, at present, have the necessary resources to take part effectively.

2. Particular Health Problems of International Significance in Thailand

Public health authorities in Thailand are well aware of the fact that nowadays civilization has progressed to the stage where health is no longer a problem of localized dimensions but is indivisible for the world as a whole. The influx of yaws and malaria from neighboring countries and recent epidemics of cholera and smallpox in Thailand have clearly illustrated this point—that "disease knows no frontiers."

Bearing this in mind, the Ministry of Public Health therefore deems it desirable to create, consolidate and further extend international cooperation in the control of disease and improvement of health. Taking into account those particular health problems which Thailand and her neighboring countries share, it is my opinion that specific cooperative projects to be undertaken on regional or international basis should include:

Effective control of tuberculosis, leprosy, and arthropod-borne viral diseases;

Eradication of malaria, yaws, cholera, and smallpox;

Measures to reduce infant mortality;

Intensification of medical research in the field of helminthic diseases (opisthorchiasis, paragonimiasis, schistosomiasis, etc.) which will lead to eventual control, or possibly eradication, of these morbid conditions;

Research and disseminatiton of knowledge in the field of nutrition.

International cooperation in the field of health is not only an important factor in improving the health and welfare of mankind, but also an effective means in promoting amity, better understanding, and good will between countries.

3. Things That Need To Be Done

In order to strengthen cooperation among researchers and health ministries of various nations against disease, the U.S. Government may assist as follows:

(*a*) To furnish assistance to the developing countries, including equipment, chemicals, literature and qualified specialists, so that research activities in certain fields could be initiated. Teams of experts might be sent to study infectious and parasitic diseases in various regions and to assist national health authorities with their control. In this manner, local health personnel can be trained and eventually would be capable of continuing the work on their own.

(*b*) To intensify, on worldwide basis, the existing campaigns against communicable diseases such as malaria, yaws, leprosy, smallpox, and cholera.

(*c*) To bring the technical people, now working in different countries of the world, together in a more cooperative endeavor to deal with health problems. Every attempt should be made to encourage meetings and exchange of scientists in selected fields with particular aim to detect gaps in the research effort and define the problems which need exploration.

(*d*) To establish a key body or machinery to coordinate international research activities and to give advisory assistance when required.

With regard to chronic diseases, cancer has become a public health problem of growing magnitude in Thailand. In fact we are planning to set up a Cancer Institute in a not-too-distant future. It is hoped that studies on certain aspects of cancer in Thailand may help to provide the key to unexplained variations in the prevalence of the disease in contrasting environments and possibly might shed some light on basic knowledge of its etiology.

I would like to express my sincere thanks for your thoughtful invitation which enables me to advance the above comments. May I extend to you my best regards and warmest wishes for your forthcoming success.

Sincerely yours,

LUANG BINBAKYA BIDYABHAD, M.D.,
Under Secretary of State for the Minister of Public Health.

VIETNAM

SECRETARY OF STATE FOR HEALTH,
August 1959.

DEAR SENATOR HUMPHREY: Your letter got here when I was attending a World Health Conference in Geneva.

I realize the task assigned to you by the Senate is a very important one which shows the broadmindedness of the Senate, and I am very pleased to let you know my opinion on this matter.

From a social point of view, we divide diseases into two categories:

Diseases typical of underdeveloped countries such as epidemic diseases, communicable diseases, and deficiency diseases.

Diseases typical of economically advanced countries such as cancer, blood vessels and heart diseases, mental diseases, etc.

With regard to the former category of diseases, they can technically be controlled by modern medicine, but cannot yet be eradicated in many countries in the world because of lack of facilities to put the new technics into practice. The main obstacle is that on account of the underdeveloped economy of these countries, their health organizations do not have adequate funds to train and hire personnel, to set up health facilities and to purchase the necessary drugs and equipment.

With regard to the second category of diseases, further laboratory researches and spot surveys will be necessary to find the solutions.

The distinction between these two categories of diseases were precisely the main reason why most member countries of the World Health Organization did not approve the organization of an "International Public Health Medical Research Year."

For Vietnam, as well as for other economically underdeveloped countries, the main problem concerns epidemic and communicable diseases although we are also interested in improving our medical technics to deal with the second category of diseases because such is the wish of certain medical technicians in our country and because of the necessity of improving the technical standard of these technicians.

International aid programs in the field of health should pay attention to the following needs:

1. To help the poorer countries in a realistic manner by providing technical and financial assistance to enable them to develop health facilities to fight communicable diseases. Such countries should not be expected to contribute more than they can afford.

2. To promote the exchange of technical personnel between different countries:

   a. Highly qualified health teams with full equipment should be sent to underdeveloped countries to train the local personnel on modern technics and to gather additional information on various diseases.

   b. Assistance should be given to technicians in underdeveloped countries to enable them to carry out researches and to put into practice the modern technics they have been taught.

   c. Technicians from underdeveloped countries should be sent to the United States for advanced training. In my opinion, this need is not as essential as the two others because after completion of their training, if they do not get any assistance and lack facilities, these technicians will not be able to put into practice the technics they have learned.

The above are a few general ideas which I hope may be of interest to you. Thank you for asking my advice and please accept my best personal regards.

Sincerely yours,

TRAN VY, M.D., D. Sc.,
Secretary of State for Health.

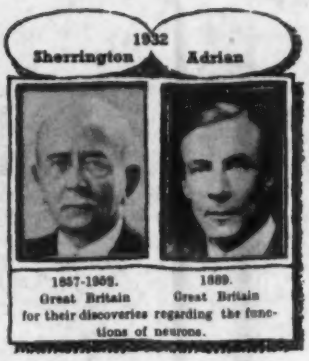
1907. Italy, action of synthetic compounds on vessels and muscles.

1904. Germany, for his work on the circulatory system.

1903. Sweden, for his work on enzymes.

1875. Great Britain
1873. Austria
for their discoveries concerning nerve impulses.

1869-1941. Germany, for his work on embryonic development.



1857-1952. Great Britain
1889. Great Britain
for their discoveries regarding the functions of neurons.

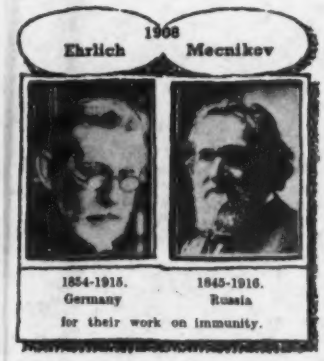
1883. Germany, for his work on the respiratory enzyme.

1868-1943. Austria, for his discovery of blood groups.

1862-1930. Sweden, for his work on the dioptrics of the eye.

1853-1927. Germany, for his work on cell chemistry.

1841-1917. Switzerland, for his work on the thyroid gland



1854-1915. Germany
1845-1916. Russia
for their work on immunity.

1845-1922. Franc
for his work
protozoa as agen
of disease.

Paris. Furthered neurology.

Dôle. Revolutionized microbiology.

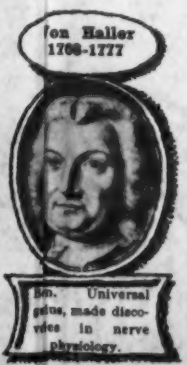
Potsdam. Invented the ophthalmoscope and furthered ophthalmology.

Schivelbein. Cell pathology; founder of modern anatomopathology.

St-André-du-Tarn. Reformed the treatment of mental patients.

Rotalben. Did basic work in health administration.

Vienna. Invented percussion.

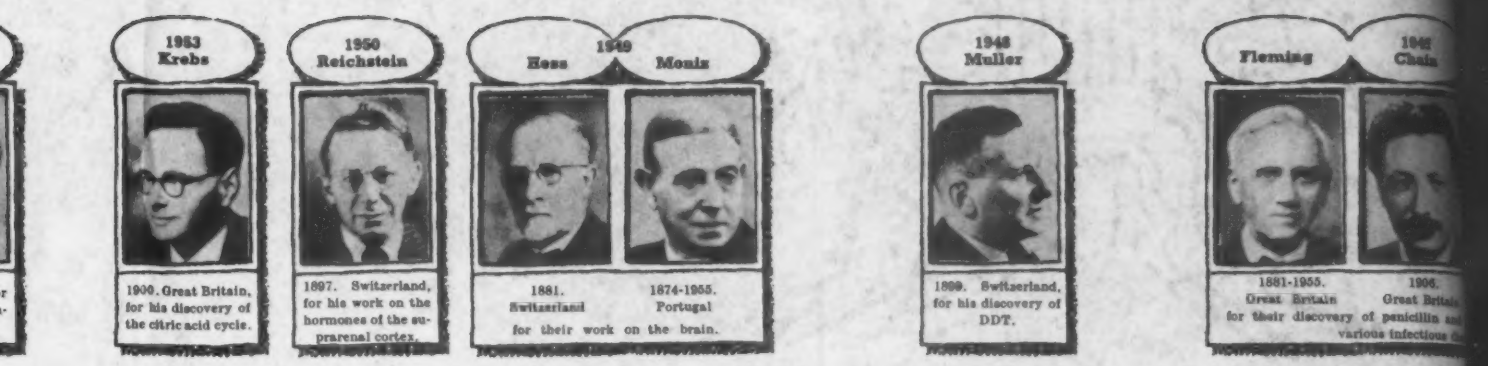


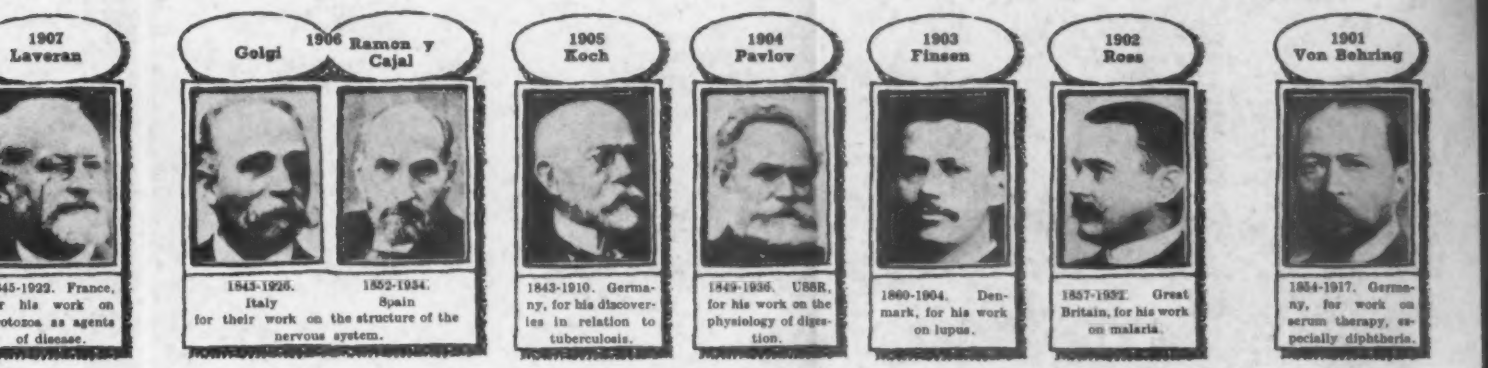
Bn. Universal genius, made discoveries in nerve physiology.

Forli. Laid the base of pathologic anatomy.

Voorhout. Ma
pils of this "
Hippocrat
became fam

FAMOUS FACES OF EUROPEAN MEDICINE





FAMOUS FACES OF EUROPEAN MEDICINE

1950 Reichstein

1897. Switzerland, for his work on the hormones of the suprarenal cortex.

1949 Hess / Moniz

1881. Switzerland — 1874-1955. Portugal
for their work on the brain.

1948 Muller

1899. Switzerland, for his discovery of DDT.

Fleming / 1945 Chain / Florey

1881-1955. Great Britain — 1906. Great Britain — 1898. Great Britain
for their discovery of penicillin and its curative effect in various infectious diseases.

Hopkins

1861-1939. Great Britain
...es of vitamins.

1928 Nicolle

1866-1936. France, for his work on typhus.

1927 Wagner-Jauregg

1857-1940. Austria, for the treatment of g.p.i. by malaria inoculation.

1926 Fibiger

1867-1928. Denmark, for his work on cancer.

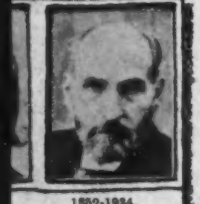
1924 Einthoven

1860-1927. Netherlands, for his discoveries in electro cardiography.

Hill

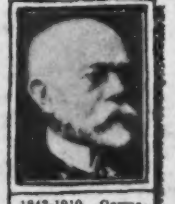
1886. Great Bri...
for their w...

1906 Ramon y Cajal



1852-1934. Spain
...on the structure of the ...ous system.

1905 Koch



1843-1910. Germany, for his discoveries in relation to tuberculosis.

1904 Pavlov

1849-1936. USSR, for his work on the physiology of digestion.

1903 Finsen

1860-1904. Denmark, for his work on lupus.

1902 Ross

1857-1932. Great Britain, for his work on malaria.

1901 Von Behring

1854-1917. Germany, for work on serum therapy, especially diphtheria.

Schaudinn 1871-1906

...Hamburg. Discov...
...ered treponema pa...
...lidum, the agent ...
...syphilis.

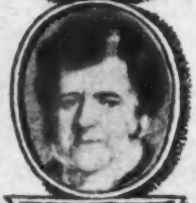
Donders 1818-1889

Utrecht. Made advances in ophthalmology.

Cl. Bernard 1813-1878

St-Julien. Revolutionized physiology.

Bright 1798-1858



London. Related œdema, albuminuria and kidney disease.

Addison 1795-1860

London. Discovered the suprarenal disease named after him.

Mag... 178...

Bordeau...
pharma...
modern

Ramazzini 1633-1714

Padua. The father of occupational health.

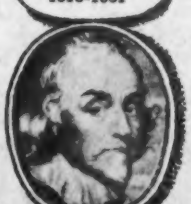
Malpighi 1628-1694

Crevalcore. Discovered the capillary vessels which confirmed Harvey's work.

Sydenham 1624-1689

Wynford Eagle. Brought clinical observation to the fore.

Harvey 1578-1657



Folkestone. Discovered the circulation of the blood.

Sanctorius 1561-1636

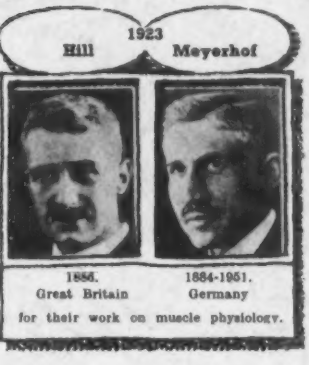
Capodistria. The first to study metabolicchange in man.

1895. Denmark, for his discovery of vitamin K.

1895. Germany, for his discovery of the antibacterial effect of prontosil.

1892. Belgium, for his discoveries in respiratory regulation.

1893. Hungary, for his discovery of tissue respiration and vitamin C.



1886. Great Britain — 1884-1951. Germany
for their work on muscle physiology.

1874-1949. Denmark, motor regulating capillary mechanism.

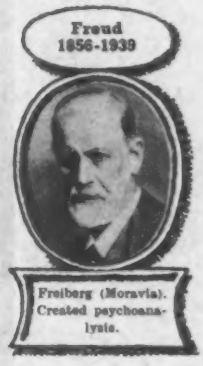
1870. Belgium, for his discoveries relating to immunity.

1876-1936. Hungary, for his work on the vestibular apparatus.

1850-1935. France, for his work on anaphylaxis.

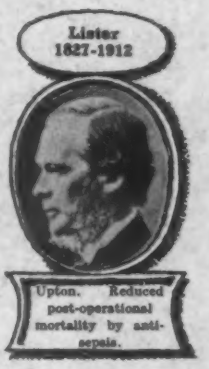
mburg. Discovd treponema palum, the agent of syphilis.

Dellys. Role of streptococcus in childbed fever, serologic typhoid test.



Freiberg (Moravia). Created psychoanalysis.

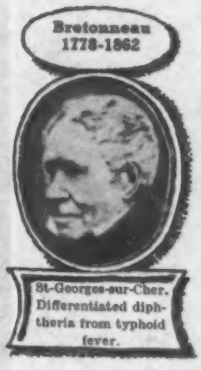
Green Hammerton. Before him, brain functions were scarcely known.



Upton. Reduced post-operational mortality by antisepsis.

Bordeaux. Founded pharmacology and modern physiology.

Quimper. Invented stethoscope; brillantly described pulmonary tuberculosis.



St-Georges-sur-Cher. Differentiated diphtheria from typhoid fever.

Thoirette. Discovered tissue pathology.

Berkeley. Discovered vaccination against smallpox.

Bourg-Hersent. Barber then surgeon, a pioneer of modern surgery

Louvain. The reformer of anatomy.

Villanueva. Discovered pulmonary circulation.

Verona. Early theory on the transmission of epidemic disease.

3. MEMORANDUM ON NOTABLE EUROPEAN CONTRIBUTIONS TO MEDICAL RESEARCH

Senator HUMPHREY. One of the interests of the Senate subcommittee has been to document the role of the scientists of many nations in contributing to the health of all peoples.

In the very first committee print which we issued, "International Medical Research," we attempted to summarize:

(*a*) The classic contributions of the scientists of many nations in certain key fields.

(*b*) More modern contributions, largely in the 20th century.

A map entitled "Science Is International, Medical Research, Like the Diseases It Combats, Knows No Geographic Boundaries" was included at the conclusion of the print. The map, in effect, demonstrated the diverse origins of major discoveries.

In the months which have followed, a number of leading sources have pointed out to us many additional names which might well have been included in the brief history which we published.

Of course, every scientist is aware of the fact that it is next to impossible to assign proper credit to all the many investigators who may contribute to particular advances in biomedical science.

Discovery is not a discrete, independent, isolated event. Discovery is a continuum. Many men add something, some more, others less. But few, if any, men can be said to have written a wholly new chapter all by themselves in the history of science. Invariably, moreover, even after a particular discovery, other men are required to advance it to its fullest development. This does not in any way diminish respect for the superb breakthroughs which have been made possible through the genius of some one man or a group of men, but it does help to provide some additional perspective on the matter of assigning credit.

CHART ON MEDICAL LEADERS

The subcommittee has sought whenever possible to provide visual materials which would be of special usefulness to laymen for purposes of background knowledge.

Accordingly, there appears, opposite this page, an historical chart. It includes pictures of many of Europe's greatest medical leaders during the past five centuries, and cites their national origin and a leading contribution. This particular chart was developed for a special issue in September–October 1960 on Europe on the part of the magazine, World Health, published by the World Health Organization. The theme of that issue was the health of Europe and the contributions by Europeans to health. Perhaps the best way the chart can be introduced is by reproduction of excerpts of the original caption:

FIVE HUNDRED YEARS OF PROGRESS

FAMOUS FACES OF EUROPEAN MEDICINE

> With the help of Dr. Jean de Moerloose of the World Health Organization's Editorial and Reference Services, World Health made this, perhaps arbitrary, selection from among hundreds of notable figures in the history of medicine in Europe from the Renaissance to the end of the 19th century.

For the present century, World Health left it to the Nobel Prize selection committee to say which Europeans made the most significant contribution to the progress of medical science. The order is the year of award. The reason for the distinction is indicated in each case, but it should be understood that most of the Nobel Prize winners have also done valuable work in fields other than those that earned them the famous Swedish award.

(Unfortunately, a map of Europe which appeared as background to the photos could not be reproduced herein since the original map, as published by WHO, was in color.)

Honoring Other Regions' Leaders

It would be my hope that, in the years to come, somewhat comparable charts might be devised which would pay tribute to the immortals of those other regions of the world whose history has been less familiar to the West. I should like, for example, to see the medical greats of Latin America, Asia, and the Middle East honored. They, too, have bequeathed us a scientific legacy which enriches our lives and helps to reduce pain, suffering and premature death wherever medical science brings its healing powers.

Modern European and Other Contributions

Further reference to great scientists will be found:

(*a*) in the memorandum on modern contributions from Europe which follows herein;

(*b*) in the section of volume III (pp. 1038 ff.) devoted to replies from Nobel Laureates in Europe and elsewhere.

Two Decades of Achievement

Following the appearance of our first committee print, there were received by the project director of our committee, at our invitation, some notes from the distinguished Secretary of the Medical Research Council of the United Kingdom, Sir Harold Himsworth. These welcome notes add insight on the subject of some of the significant contributions from Europe within the past two decades. They are reprinted here verbatim as another helpful reference guide.

From Sir Harold Himsworth, Secretary, Medical Research Council, United Kingdom

Some Notable European Contributions to the Advancement of Medical Science in the Last Two Decades

In the story of man's conquest of disease it is often difficult to apportion fairly the credit which may be due for any particular advance which has been made. The more spectacular contributions which attract public attention throughout the world often depend upon patient teamwork within the subject in which the advance is made and also upon gains in knowledge in the basic sciences on which medicine depends. The steady growth of understanding which has taken place over the years of this century has, nevertheless, been marked by a series of major developments. The following notes draw attention to some of these which have taken place in Europe, but it should be emphasized that medicine is indivisible and that its general advance depends upon collaboration in the day-to-day work of medical scientists in hospitals and laboratories and in the field all over the world.

CHEMOTHERAPY AND ANTIBIOTICS

It would be generally agreed that the major advance in medicine in this century has been the development of chemotherapeutic and antibiotic agents capable of being used with safety against a wide range of the infections which beset man in different parts of the world. The use of these agents has saved countless lives and changed the whole pattern and outcome of many diseases for which hitherto there had been no effective specific treatment.

(a) The sulphonamide drugs

These synthetic antibacterial compounds took origin from the work of G. Domagk in the I. G. Farbenindustrie in Germany, who tested a long series of azo-dye compounds for their therapeutic activity particularly against streptococcal infections. The first effective drug which he discovered (sulphonamidochrysoidin) was marketed in 1935; within a year workers at the Pasteur Institute in Paris separated the active principle—p-aminobenzenesulphonamide—from the inactive dye component. This drug was active against the streptococcus, the gonococcus and the meningococcus. In 1938 a new sulphonamide drug, active against the pneumococcus, and thus effective in combating pneumonia, then one of the three major causes of death, was introduced by British workers in the firm of May & Baker, Ltd.

The mechanism of action of the sulphonamides was later elucidated by the British workers, Sir Paul Fildes and Dr. D. D. Woods (Medical Research Council). Their discovery that these drugs interfered with the normal life of a micro-organism by competing with it for an essential nutrient proved to be the basis for a rational approach to further work in the field of chemotherapy.

(b) Penicillin

The story of penicillin is probably so well known that it only needs brief mention. The late Sir Alexander Fleming—working at St. Mary's Hospital in London—first noticed, as a result of accidental contamination of a culture, that inhibition of the growth of staphylococci was produced by a mold—penicillium notatum. This observation was made in 1929 but did not appear to be capable of clinical application since the active principle seemed unstable and difficult to manipulate chemically. It was not until 10 years later that a team of workers under Prof. (now Sir) Howard Florey and Dr. Ernst Chain, working in Oxford with support from the Medical Research Council, the Nuffield Foundation and the Rockefeller Foundation, developed methods of concentrating and purifying the active principle, penicillin.

Clinical trials showed that penicillin had an almost miraculous effect in controlling the most severe infections with pyogenic bacteria but the preparation of adequate amounts of the drug was at that time a formidable undertaking. For instance, one case of severe sepsis might need the brewing and processing of as much as 2,000 liters of medium.

Owing to the war situation in Great Britain in 1941, the prospect of early commercial manufacture of any substantial quantities of penicillin seemed slight. Therefore, through the Rockefeller Foundation arrangements were made for Sir Howard Florey and a colleague to visit the United States where large-scale production was promoted by several manufacturing firms. This international cooperation directly resulted in sufficient progress being made to enable penicillin to be used in the treatment of all severe United States and British casualties in the final campaign in Europe.

Sir Howard Florey, Sir Alexander Fleming, and Dr. Ernst Chain received the Nobel Prize for their work on penicillin in 1945.

(c) Antimalarial drugs

Malaria until recently caused more deaths and chronic ill health on a world scale than any other single disease. The development of insecticides for the control of the mosquitoes which spread the disease and the use of antimalarial drugs for the suppression of symptoms and prevention of relapses have radically changed the situation. Mepacrine, a drug which was effective in suppressing symptoms, was developed in Germany. Two important drugs having the advantage of attacking the malarial parasites in the liver and thus preventing relapses and the spread of the disease were developed by research workers in the British firms I.C.I. and Burroughs Wellcome. These were paludrine (proguanil) and daraprim (pyrimethamine); both have been used extensively for malaria control throughout the world.

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PARTITION CHROMATOGRAPHY

In order to understand many disease processes it is necessary to be able to study minute chemical alterations taking place in the cells and fluids of the body. An entirely new method of analysis developed by two British workers—Dr. A. J. P. Martin and Dr. R. L. M. Synge between 1936 and 1944—has revolutionized the possibilities of undertaking such studies and has already had very important repercussions in many fields of research.

The two classical methods of separating closely related molecules—crystallization and fractional distillation—have existed probably for centuries and were the basis for the development of the whole edifice of organic chemistry during the 19th century. A Russian botanist, Tswett, first described a new method, which he called chromatography, in 1906, but it was treated with skepticism and received very little attention.

Martin and Synge developed Tswett's ideas to the extent that an analysis of minute quantities of biological substances which would previously have taken 2 to 3 years could be undertaken, using extremely simple techniques, in 48 hours. This method, known as paper chromatography, was introduced in 1944 and is now used throughout the world in all laboratories interested in the analysis of natural products. It is of value not only in the analysis of proteins where it has been the basis of great advances on knowledge but also in the study of all the complex products of the living cell. It has been said to be the greatest development in this field since the introduction of the balance.

Dr. Martin and Dr. Synge were in 1952 awarded the Nobel Prize for chemistry for their work on partition chromatography.

THE STRUCTURE OF PROTEINS

In all branches of medicine, advances may be expected to occur when we have a fuller understanding of the characteristics of the basic biological materials and the changes which constantly occur in them. Some important first steps in this direction have recently been made by British workers studying the structure of some of the protein molecules which are present in living cells and in the enzymes (or ferments) which control almost all living processes.

Despite the immense variability of proteins they can all be shown, when broken down, to consist of the same subunits—the amino-acids. The unravelling of the extremely complex way in which these subunits may be put together in any particular protein has, until recently, defeated the ingenuity of scientists. Dr. Sanger (Medical Research Council) working in Cambridge has, however, now elucidated the detailed structure of insulin—the enzyme secreted by the pancreas, which is deficient in diabetes. Dr. Kendrew (Medical Research Council), also working in Cambridge using different teheniques, has been able to build a three-dimensional model of the very complex protein, myoglobin—a constituent of many animal cells. Dr. Crick has similarly studied the substance of heredity desoxyribonucleic acid. The application of these discoveries, though perhaps not immediately apparent, may have very far-reaching effects.

Dr. Sanger was recently awarded a Nobel Prize for his work on the structure of insulin.

CELL METABOLISM

Another fundamental discovery which has increased our understanding of the dynamic biochemistry of the body was made by Professor (now Sir Hans) Krebs, director of the Medical Research Council's cell metabolism research unit. Studying the series of reactions which convert carbohydrate to carbon dioxide and water and thus liberate energy for living cells, Professor Krebs was able to postulate and later prove that a process took place which could be repeated indefinitely. This process is known as the citric acid cycle and is concerned in most forms of metabolism. It is of considerable significance to medicine and biology as a whole and for this work Professor Krebs was in 1953 awarded a Nobel Prize.

THE PRESERVATION OF LIVING CELLS AT LOW TEMPERATURES

It has for long been known that some invertebrate organisms and plant cells and tissues can survive exposure to extremely low temperatures (i.e. —79° C. to —192° C., the respective temperatures of solid carbon dioxide and liquid air). Until recently, however, the processes of freezing and thawing were thought to be lethal to the cells of higher animals. Dr. A. S. Parkes and his colleagues, Dr.

Audrey Smith and Mr. E. J. C. Polge, working at the National Institute for Medical Research, showed in 1949 that if a diluting fluid containing glycerol were used, then fowl spermatozoa regained full motility after prolonged freezing at —79° C. The technique has since been developed and applied to many different kinds of cells and tissues and to whole animals. Its immediate application has been in the field of agriculture for the breeding of cattle by artificial insemination, but it also provides a practical method for preserving human red blood cells for transfusion and human corneal tissue for grafting. Its application to the preservation of whole organs for transplantation is now under investigation.

USE OF RELAXANT DRUGS IN ANESTHESIA

In 1934, Dr. Harold King working at the National Institute for Medical Research isolated the active principle (*d*-tubo-curarine) from specimens of the native arrow poison, curare, obtained from British Guiana. His work on its chemical structure paved the way for the use of curare alkaloids to obtain muscular relaxation in surgical anesthesia and this initiated a major advance in the practice of anesthesia for abdominal surgery.

The success of this technique led to great interest in compounds of a similar type and to the development of related synthetic compounds. This work, for which Dr. King, Dr. (later Professor) W. D. M. Paton and Dr. E. J. Zaimis were responsible, became concentrated on a series of compounds now known as the methonium drugs. Further work by Dr. H. R. Ing and Mr. R. B. Barlow at Oxford led to the development of the 10 carbon-atom member of this series—decamethonium. Pharmacological studies showed that this particular compound was not only outstandingly active but that it showed less effect on respiratory than on other muscles as well as being remarkably free from the side actions produced by curare.

The experimental trials of this drug were sufficiently promising to warrant its being tested in man. Such tests were first made by Dr. G. S. W. Organe, Dr. Paton and Dr. Zaimis on themselves and later on a wider scale. Its efficacy in clinical use was soon proved and decamethonium has now been established for several years as a valuable drug for use as a muscle relaxant in anethesia. Its introduction has been of great practical benefit in making surgery possible in certain age groups and for particular conditions where hitherto it had not been regarded as practicable.

Decamethonium has proved very effective also for use in softening the violence of the convulsion treatment used in certain mental disorders.

CONTROL OF HIGH BLOOD PRESSURE

All therapy of hypertension has as its object the reduction of arterial pressure, but although many drugs and remedies (e.g., the low-salt diet) have been tried, few have remained in use. It was not until Dr. (now Professor) Paton and Dr. E. J. Zaimis (working at the National Institute for Medical Research) showed that the shorter chain members of the series of methonium drugs (see above) could paralyze the autonomic nervous system that real progress seemed likely in this field. In particular the six carbon-atom member of this series, hexamethonium, was shown to exert a powerful paralyzing action on the ganglia of this system and to be relatively free from other actions.

Hexamethonium was later tried and found effective in human hypertension by Prof. M. Rosenheim and Dr. P. Arnold at University College Hospital, London, and its subsequent development for clinical use on a wide scale has taken place at many centers throughout the world. Hexamethonium (and to a lesser extent pentamethonium) remains the most effective drug in controlling arterial pressure and thus in prolonging life in cases of malignant hypertension.

BCG VACCINATION

A vaccine which was said to confer immunity against infection from tuberculosis was first introduced in France by Prof. A. Calmette and Dr. C. Guérin in 1920 and named after them as BCG vaccine. It was derived from a strain of bovine tubercle bacillus which has been attenuated—or weakened so that it was nonpathogenic to man—by repeated culture in a bile-containing medium. A similar antituberculous vaccine was developed in 1946 by Dr. A. Q. Wells in Oxford using the organism responsible for causing tuberculosis in the vole.

BCG vaccine has, since its introduction, had a very varied reception in different parts of the world, being extensively used in the Scandinavian coun-

tries and Russia but only on a very limited scale in Britain and America. This state of affairs can be explained by the lack of firm statistical evidence in favor of the vaccine when used on large populations as a preventive measure. Recently, however, Dr. D'Arcy Hart (Medical Research Council) in Britain has undertaken carefully controlled trials of the value of BCG and vole bacillus vaccine in the protection against tuberculosis of young people leaving school.

Even though modern methods of chemotherapy and lung surgery have greatly reduced the death rate from tuberculosis, the number of new cases remains high, even in a country like Great Britain.

It is, therefore, very encouraging to find that the results of the trial to date indicate that BCG vaccination can reduce, by at least one-half, the expected number of cases of tuberculosis developing between 14 and 17 years of age, and thus make a substantial contribution to the prevention and ultimate eradication of this disease.

TRACHOMA

The problem of trachoma is worldwide and the condition, which is particularly prevalent in underdeveloped countries, is responsible for a large proportion of blindness.

For many years attempts to isolate the virus suspected to be responsible for the disease have failed, but about 2 years ago Dr. T'Ang in Peiping succeeded. The Medical Research Council already had a research group tackling this problem both in England and in their laboratories in the Gambia. In conjunction with the Lister Institute they were able to repeat T'Ang's experiment and have since been able to show that this virus will cause early lesions of trachoma in human volunteers and baboons.

This is a major step forward as it makes it possible to envisage the development of a preventive vaccine and provides a suitable experimental preparation for the study of new treatments.

BLINDNESS IN PREMATURE INFANTS

In 1942 Dr. T. L. Terry of Boston, Mass., remarked on the sudden appearance of numerous cases of bilateral blindness in premature children born in a hospital clinic in that city; he called the condition retrolental fibroplasia. Within a short while the condition had been reported in a number of countries, appearing often in epidemic form in nurseries for premature infants attached to hospitals. At a time when some of the major causes of blindness had been removed, the emergence of a new condition was particularly disturbing.

Of the various theories advanced on both sides of the Atlantic to account for the disease, it seemed that one cause for the proliferation of blood vessels which gave rise to the mass of fibrous tissue behind the lens might be the habit prevalent at that time of rearing these infants in an atmosphere rich in oxygen. This was examined experimentally by Dr. (now Professor) N. H. Ashton in the Institute of Ophthalmology, London, and the results of his experiments were dramatic in their confirmation of this theory.

This evidence, conclusive enough, on experimental grounds, was confirmed by the council's clinical survey in which many different factors, both in the mother's pregnancy and labor and in the baby's early life, were investigated for a possible association with the development of the disease.

As a result of the application of this knowledge, the administration of oxygen to premature infants was drastically curtailed. This led to an immediate decrease in the number of cases occurring and it now seems clear that retrolental fibroplasia as a common and tragic disease has virtually disappeared as dramatically as it appeared less than 20 years ago.

MEDICAL STATISTICS AND EPIDEMIOLOGY

One field of medical science in which British workers have made a notable contribution is that of medical statistics. With the modern development of so many new agents for the prevention and treatment of disease the use of scientific methods for their assessment has acquired a growing importance. Prof. Bradford Hill (honorable director of the council's statistical research unit) has played a major part in demonstrating the value of the "controlled trial" as a means of showing conclusively whether a new agent is of sufficient value to warrant its general introduction into medical practice. A whole series of such trials have been conducted over the past 10 to 15 years and have rationalized the use of many antibiotics and vaccines. The trial of the value

of cortisone and ACTH in rheumatic fever deserves particular mention in that it was organized jointly under American and British auspices and was conducted simultaneously in an identical way on both sides of the Atlantic.

A further contribution that statistics can make to medical research is in the so-called epidemiological study of the effect of certain factors in the causation of disease. Work along these lines has been applied to an increasing extent recently in the study of noninfectious diseases and has, for instance, already thrown light on some of the factors responsible for causing certain kinds of cancer. One example of this type of study is the work of Prof. Bradford Hill and Dr. Doll on the role of cigarette smoking in the causation of cancer of the lung. Several industrial causes of cancer have been identified by the use of similar techniques and the extension of such studies to the problem of cancer in different parts of the world, where environmental conditions and cancer incidence are very different, holds great promise.

MENTAL HEALTH

(*a*) *Electroencephalography*

In 1929, Berger, a German psychiatrist, discovered that changes in electrical potential could be recorded from the head of the human subject by means of pad electrodes applied to the scalp or needle electrodes placed in contact with the periosteum (outer covering of the bone) of the skull.

Adrian and Matthews, working at Cambridge, then found that in normal persons three wave frequencies—the alpha, beta, and delta rhythms—could be detected in this way, and that the alpha waves appeared when the eyes were shut, but were abolished by any visual activity or by mental effort. They made the added observation, however, that these waves continued to be present when the eyes were open, provided that the visual field was entirely free from pattern; if the subject attempted to fix his eyes upon any detail the waves disappeared, while if the visual field flickered the waves assumed a rhythm of the same rate as the flicker.

These experiments led Adrian and Matthews to conclude that the waves were caused by a spontaneous beat of an area of the brain concerned with pattern vision.

Investigation of the beta and delta waves then showed that the former emanated from the area of the brain concerned with movement of the limbs and body and that the latter were only usually present during sleep in normal adults, their presence during consciousness signifying the presence of some pathological process in the brain such as epilepsy, a tumor, mental deficiency, or depression of the brain's function through some toxic factor. From this work was developed the use of the electroencephalogram to detect abnormalties of the brain. The machine is now in routine use and is particularly efficacious in the diagnosis of types of epilepsy; much research still remains to be done to explore the exact significance of the electroencephalogram in different types of mental disorder.

(*b*) *Some forms of treatment for mental illness*

The credit for the introduction of convulsion treatment by means of drugs in cases of schizophrenia is usually accorded to Von Meduna, working in Budapest in 1934. In 1937, however, two Italian workers, Cerletti and Bini, after experimenting on animals with the production of convulsions by electrical stimulation, introduced electrical convulsion treatment, which soon replaced the older method employing chemical convulsants. ECT has become the most effective treatment for certain types of depressive illness—particularly the type occurring in later life known as involutional melancholia and the type known as endogenous depression for which there appear to be no precipitating causes in the patient's own life or circumstances—and it has been developed in Britain for simple use in outpatient departments; it has also been found helpful as an adjunct to insulin therapy in schizophrenia.

In 1933 Manfred Sakel of Vienna first described the use of insulin to improve the dispositions of drug addicts, whose psychotic symptoms—hallucinations, for example—were dispelled by the administration of this substance, and he suggested that insulin might be used to control the restlessness, irritation, and hallucinations occurring in schizophrenic patients. This technique was immediately adopted in many different countries and has become a highly skilled routine treatment.

Prefrontal leucotomy, an operation to divide the pathways in the brain carrying associations, was first introduced by Egas Moniz, a Portuguese surgeon, in 1935, and has been developed, among others, by Freeman in America and McKissock in England.

(c) Recent experimental work

The characteristics of some mental disorders has led to the belief that they may be in some way due to intoxication. Studies of the effect of various drugs introduced by the ordinary routes of ingestion or injection have, however, completely failed to throw any further light on the problem. Recently some experimental work by Dr. Feldberg at the National Institute for Medical Research has opened up new possibilities in this field. He has been able to show that not only drugs, but some of the normal bodily secretions when introduced in minute quantities into the fluid which normally bathes the brain and central nervous system, may have profound effects on mental functioning. The application of this work may lead to an understanding of the causes of forms of mental disease which have hitherto been completely unknown.

CORONARY THROMBOSIS AND ATHEROSCLEROSIS

In North America and northern Europe the degenerative arterial disease, atherosclerosis, including coronary artery disease, has become a major cause of death. Although this is to some extent a reflection of our increasing lifespan there is a disturbingly high incidence of these conditions among men in the prime of life. A substantial research effort is being devoted to the problem in most countries and although our understanding of the causative factors is by no means complete, a number of advances have been made in recent years. The fact that the disease occurs to a very variable extent in different populations living under very variable environmental conditions led to the idea that diet and ways of life might be significant aetiological factors.

The field studies of Dr. Ancel Keys provided evidence that the amount of fat in the diet was of importance. In Britain Dr. R. G. Macfarlane demonstrated in 1941 that a factor of a lipid nature is essential for the normal process of blood coagulation. This led Dr. Fullerton and his colleagues in Aberdeen to investigate the possibility that altered coagulability of the blood might follow the ingestion of fat. He found that after a fatty meal there was a significant reduction in the time taken for blood clotting.

Working on another aspect of this disease Dr. J. N. Morris of the Medical Research Council's social medicine research unit was able to show that men with sedentary occupations were more likely to develop coronary artery disease than men whose jobs involved taking a good deal of exercise.

THE ARTIFICIAL KIDNEY

There are many conditions in which kidney function may become temporarily seriously reduced or even cease altogether; these include severe injury or shock, toxaemia, accidents following blood transfusion or obstruction to the renal tract. Until recently, unless function returned in response to medical treatment in a matter of 5 or 6 days the physician could not control the inevitable deterioration in the patient's condition—ending in death. The idea of passing the patient's blood through an artificial kidney to remove unwanted products was first discussed in America by Abel, Rowntree, and Turner in 1913, but the very great technical difficulties involved were not overcome until many years later. The first artificial kidney to be used successfully in clinical work was devised by Kolff in Holland in 1943.

Since its introduction the apparatus has been improved in several ways particularly by Merrill at the Peter Bent Brigham Hospital in Boston and recently artificial exchange resins have been used by Bonanome in Italy to improve its performance.

A recent report on a series of 203 severe cases of impaired kidney function showed that the use of the artificial kidney has completely changed the outlook for patients with this condition, reducing the mortality to below 10 percent.

ANTIHISTAMINE DRUGS

Histamine, a substance which is widely distributed in animal tissues, may be released by them in response to various stimuli; it was shown in 1910 by Dale and Laidlaw in Great Britain to be responsible for anaphylactic shock, the condition of massive collapse in animals which is attributable to an acute reaction of the smooth muscle in the body and an increase in the permeability of the blood capillaries. Histamine also produces more localized reactions of an allergic nature such as urticaria (nettle rash) and asthma.

In 1937 Bovet and Staub in Paris first developed drugs which counteracted the effects of histamine. These antihistamine drugs are now used widely in clinical practice; they neutralize the effect of histamine on smooth muscle and reduce capillary permeability and thus have an invaluable palliative effect on the symptoms of allergic diseases.

4. MEDICAL RESEARCH IN AN EMERGING NATION—INDIA

Senator HUMPHREY. Most of the references within this volume bearing upon medical research tend to be concentrated on institutions and individuals in the North American and European nations.

Other areas of the world—the emerging regions, Asia, Africa, Latin America and the Middle East—tend to have fewer research resources and to be preoccupied with problems of technical assistance. The latter involves the application of available biomedical knowledge rather than research per se. However, it is indicated at many points within this volume that there is a deep interest among a great many of the emerging nations in making ever-increasing contributions to the world's research potential.

This is true, for example, of the great nation of India. There follows the text of a letter which was received from Sir C. V. Raman, President of the Indian Academy of Sciences. He kindly responded to my invitation by transmitting a message from and a copy of an address by Maj. Gen. S. L. Bhatia, a member of the Council of the Academy. The address provides a very valuable summary on the past, present, and future of medical research in India.

The correspondence and text of the address follow:

INDIAN ACADEMY OF SCIENCES,
Hebbal Post, Bangalore, July 14, 1959.

DEAR SIR: Your letter of April 15, 1959, and the accompanying memoranda duly came to hand.

I handed these papers for study to Maj. Gen. S. L. Bhatia who is a member of the Council of this Academy and who has special knowledge of medical matters. In reply, he has sent me a letter and enclosed a copy of his lecture entitled "History of Medical Research in India." The letter itself contains some remarks and suggestions. I am sending you his letter in original as well as its enclosure in the belief that they contain material which will be of interest to your subcommittee.

Yours sincerely,

Sir C. V. RAMAN, F.R.S., N.L., *President.*

BANGALORE, *June 19, 1959.*

MY DEAR DR. RAMAN: Thank you very much for your letter of 2nd June 1959. I have carefully gone through the letter and the literature from Mr. Hubert H. Humphrey, Chairman of the U.S. Senate Subcommittee on Reorganization and International Organizations. He desires to make a twofold review of:

1. International medical research and
2. International medical assistance programs notably among developing countries in Latin America, Asia, Africa and the Middle East.

So far as India is concerned, United States Government can do a great deal to help the progress of medical research in this country.

The whole field of medical research in India was surveyed by the Health Survey and Development Committee in its report in 1946 and it made certain important recommendations, which have been kept in view by the Indian Council of Medical Research in framing its program of Medical Research in the Second Five-Year Plan. The main objects of this program are to gain further knowledge in the essential fields of medicine, both curative and preventive, and the application of this knowledge in the urgent medical and public health problems in the country. Their objective is to be achieved (a) by the

strengthening of the facilities available for research in the existing institutions in the country in order that they may render greater service than in the past in their respective spheres of study; (b) by creating new institutes for research in specific fields; (c) by the training of research workers by granting fellowships and by other suitable methods; (d) by forming a cadre of research workers; (e) by initiating research programs for the solution of many urgent problems in the field of medicine and public health; and (f) by establishing close cooperation with various national and international agencies in regard to all problems relating to research. This indicates the policy which is guiding medical research in India today. Many specific problems of an urgent nature are under investigation, namely those pertaining to nutrition, environmental sanitation, maternal and child health, industrial health, drug research, and measures for the control of communicable diseases, such as leprosy, tuberculosis, etc. It is also necessary to promote fundamental research.

I enclose a copy of my lecture on "History of Medical Research in India" which was delivered under the auspices of the University of Bombay at the Diamond Jubilee Celebrations of the Haffkine Institute, Bombay, on 13th January 1959. If you wish, you may send it to Mr. Humphrey as it would interest him, and would supply him with the necessary background to this subject in India.

If you ask Mr. Humphrey to communicate with me, I might supply him with any further information he may need.

May I say that I am closely connected with the following research institutes in the country today:

1. As a member of the Executive Council of the Indian Institute of Biochemistry and Experimental Medicine, Calcutta.
2. As a member of the Pharmaceutical and Drug Research Committee of the Council of Scientific and Industrial Research, New Delhi.
3. As a member of the Executive Council of the Central Drug Research Institute, Lucknow U.P.

The United States Government could help materially by supplying essential equipment for research purposes not easily available in India; by training research personnel; and by exchange of research workers, etc. We are already receiving assistance from the World Health Organization and T.C.M. and the Colombo Plan. Further help is very much needed and would be most welcome.

With kindest regards,

Yours Sincerely,

MAJOR GENERAL S. L. BHATIA, I.M.S. (Retd.).

P.S.—Mr. Humphrey may publish my lecture on "History of Medical Research in India" if he so wishes.

HISTORY OF MEDICAL RESEARCH IN INDIA[1]

It is my privilege to address you today on the subject of "History of Medical Research in India." This is the first lecture in a series of three, which I am delivering at the invitation of the University of Bombay. I take this opportunity to offer my sincere thanks to the authorities of the Bombay University for the great honour they have done me. I am happy that these lectures are being delivered at the Haffkine Institute at the time of its Diamond Jubilee Celebrations. This will forge the link between this Institute and the University, which already exists. They are both essentially cultural institutions concerned with the advancement of knowledge and discovery of Truth. For this arrangement my grateful thanks are due to my esteemed friend, Dr. Jhala, the Director of this Institute, and the authorities of the Bombay University.

I may say at the outset that it gives me very great pleasure to come here and meet my old friends and join you in these Diamond Jubilee Celebrations of the Haffkine Institute, for it was here in Bombay that I spent 21 happy years of my life in the service of another medical institution, the Grant Medical College, which is really a sister institution, closely related historically with the Haffkine Institute.

In celebrating the Diamond Jubilee we are naturally apt to look back on the past, and consider the progress made not only by this Institute, but in the whole

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[1] Lecture I of the Bombay University Lecture Series, delivered by Major General S. L. Bhatia, C.I.E., M.C., M.A., M.D. (Cantab), F.R.C.P. (Lond.), F.R.S. (E), IMS (Ret), at the Haffkine Institute, Bombay, as part of the Diamond Jubilee Celebrations of the Institute on 13th January 1959.

field of medical research—the task with which this Institute was primarily connected.

In considering the history of Medical Research in India I shall not start at the very beginning. Medicine as you know, has been practised and taught in India since very ancient days and great contributions were made to it, of which we may be proud. I shall deal more fully with this early period in my third lecture. Medical Research, as we know it today, is really a part of the scientific revolution, which dates from the Renaissance, which took place in Europe from the 15th and 16th centuries onwards.

What happened during the Renaissance, which gave such an impetus to the growth, not only of medicine but of science generally, resulting in the Scientific Age, in which we live today? The Renaissance consisted of a revival of learning. It commenced in Italy and spread over the continent. It was a new spirit, a new desire for knowledge and progress, which affected every sphere of life. Unquestioning acceptance of authority, specially authority of the written word, gave way to criticism and enquiry, and medicine, which had scarcely advanced since the days of Hippocrates and Galen, was quickly enriched with new discoveries. This change took place gradually. It is important to realise, that mankind is slower to change its attitude of mind than many of us realise.

There is a definite contrast between mediaeval and modern times. An atmosphere hostile to free enquiry gave way to one, in which science could live and flourish. During the middle ages, the church was the sole repository of culture. But in the 15th and 16th Centuries, there began an enquiry of nature, which led to the development of modern medicine and science generally, and through the invention of printing, which took place about that time, the new culture which had started, became a general possession of a much larger number of people, than was the case before. "With a sharp gesture of impatience," says H. A. L. Fisher (the Oxford Historian), "Europe turned away from the vast literature of commentaries and glossaries, which the pedants of the later middle ages had inscribed in letters of opium on tablets of lead." This was the free atmosphere, illuminated by a new spirit of adventure and enquiry, which cherished views of life based on freedom of thought and right of the individual conscience, which came to India through our contact with the West.

The man who revolutioned Medicine in Europe at this time was Andreas Vasalius, born in Brussels in 1514, who became Professor at Padua University at the age of 29, and who had the courage to criticise and differ from the views of Galen, whose classical medical teachings were then widely current throughout the continent. He wrote a book, "De Humani Corporis Fabrica," based on dissections of the human body, carried out by himself under great difficulties, and which according to Sir William Osler is "the greatest book ever printed from which modern medicine dates."

There are many illustrious names of physicians and other scientists who had caught the spirit of the Renaissance, and made many contributions to Scientific Medicine, namely William Harvey, Thomas Linacre, Laennec, Edward Jenner, Louis Pasteur, Joseph Lister, Robert Koch, and others. Medicine made great progress in the 18th and 19th centuries, but the rapidity with which it is advancing in the 20th century is beyond the imagination of any of the previous generations.

Medical Research in India: Early Stages.—India too, as I said, came under the influence of the Renaissance at a time when the systems of medicine in vogue here were the Ayurvedic and the Unani. The progress in the earlier stages was slow as was the case in Europe also. So far as Medical Research in this country is concerned, we may divide it into two phases:

(a) The phase, when research was carried out by individuals at their own initiative. This period extends up to the close of the 19th century.

(b) The phase, when organisation of medical research took place. This phase begins with the commencement of the 20th century.

I shall at first briefly consider the activities of the first phase.

Prior to the organisation of Medical Research at the beginning of this century, the following names of pioneers in this field may be mentioned:

1. Lewis's work on Trypanosomes.
2. Vandyke Curter's work on spirillum of Relapsing Fever, Leprosy, and Mycetoma infections. He did this work in Grant Medical College, Bombay.
3. Cunningham and Macnamara's work on Cholera.
4. Ronald Ross's great discovery of the transmission of Malaria by the Anopheles Mosquitoes in 1898. This work was done by Ross in a Military Hospital in Begumpet, Secunderabad (Hyderabad Dn.). This building is

still there, and I am well acquainted with it. We should establish an Institute there in memory of Ross. This proposal was made by me, when I was Inspector General of Medical and Health Services there in 1953. I hope it will soon take a practical shape.

5. Thomas Anderson, who imported yellow bark cinchona from Java, while working as Superintendent of Calcutta Botanical Gardens in 1861. This was a very wise step in view of the wide prevalence of Malaria in this country.

6. Sir George King, who wrote a book "Manual of Cinchona Cultivation in India" in 1876, while working as Superintendent of the Calcutta Botanical Gardens.

7. K. R. Kirtikar, who was the author of "Medicinal Plants of India."

8. Patrick Russell, who wrote an account of "Indian Serpents," 4 volumes in 1796 to 1809.

9. Sir Joseph Fayer, who carried out experiments on Snake Poisons and embodied them in a book "The Thanatophidia of India," London 1872.

10. A. J. Hall, who was the author of "Indian Snake Poisons" written in 1883.

11. Dr. R. Row and Dr. Surveyor in Bombay, Dr. U. N. Brahmchari and Dr. Niratan Sarkar in Calcutta; and others.

THE ORGANISATION OF MEDICAL RESEARCH IN INDIA

(*A*) *Establishment of Research Institutes and Laboratories*

1. *The Haffkine Institute, Bombay.*—The organised medical research in India began at the close of the last century, when there was an epidemic of plague in the country, and it was Haffkine's work in Bombay which set the ball rolling.

The Haffkine Institute, whose Diamond Jubilee we have assembled to celebrate, owes its inception to the work of Haffkine, which will ever remain memorable in the history of medical research in India. Waldemar Mondecar Wolff Haffkine was born on 16th of March 1860 at Odessa in Russia. He graduated in the Science Faculty of Odessa University in 1884. In 1888, he was appointed Assistant Professor of Physiology in the University of Geneva (in Switzerland). He was attracted by the work of Pasteur and Koch, which was actively in progress at the time. In 1889, Haffkine came to Paris to work under Pasteur at the Pasteur Institute. Under Pasteur's able guidance he began his researches on the Comma Bacillus, and the problem undertaken was to prepare a vaccine against cholera, which he actually did. In 1893, at the invitation of the Government of India he came to Calcutta to continue his researches on Cholera. He proved the efficacy of the prophylactic inoculation against this disease.

While he was engaged in this work on Cholera in Calcutta, plague broke out in Bombay as a severe epidemic. It was imported here from Hong Kong in 1896 and rapidly spread to other parts of India both in the North and the South. Haffkine was sent here by Government to investigate the disease, and to find out prophylactic treatment for it, as had been done in the case of cholera. He arrived in Bombay on 7th October 1896, and immediately started working in a room on the top floor of the F. D. Petit Laboratory in Grant Medical College. It was here that he made the discovery of the stalactite growth of the plague bacillus, when grown in nutrient broth.

On 10th January 1897 he inoculated himself with 10 cc. of the preparation proving its harmlessness. After this, the inoculation became steadily popular. As the work increased, the space in the F. D. Petit Laboratory was found to be insufficient. So his laboratory was shifted to the "Cliff" bungalow on Malabar Hill, then to another bungalow on Nepean Sea Road, then to Khushru Lodge in Mazgaon, which was given by H. H. Sir Sultan Shah, the Agha Khan. As demands for the plague vaccine increased further, the need for bigger accommodation was again strongly felt; and so the old Government House at Parel was placed at Haffkine's disposal. The Plague Research Laboratory with Haffkine as its Director was opened in this building on 10th of August 1899. It was then under the control of the Government of India. Haffkine remained Director till 1904, and retired from service in 1914. He then took up his permanent residence in Boulogne-sur-Mer. He died on 26th October 1930, and with him passed away a great genius, who laid the true foundation of Medical Research in India.

In 1905, the laboratory was taken over by the Government of Bombay, and in 1906 it was named Bombay Bacteriological Laboratory and entrusted with ad-

ditional duties. In 1925, when Col. Mackie was the Director, it was renamed as the Haffkine Institute in honour of its Founder.

The Plague Bacillus had been discovered by Yersin in 1894. Bacteriological examination had confirmed the diagnosis of Plague when it broke out in Bombay in 1896. The credit for this goes to Dr. Surneyor who was Professor of Bacteriology in Grant Medical College.

In 1897, Yersin and Roux had expressed the view that plague was a disease of rats. At that time Dr. P. L. Simond, a Frenchman who was working in Bombay, supported it, and put forward the hypothesis that the transmission of infection from rats to human beings took place by the bite of fleas. The Indian Plague Commission in 1905 arrived at the same conclusions. They worked with Xenopsylla Cheopis. Differentiation of fleas into Cheopis, Astia, and Brasilensis was not made out then.

The Institute concerned itself also with the treatment of plague. In the early stages, it was the Anti-Plague Serum, then came sulpha drugs and then streptomycin, whose efficacy was shown by Sokhey and Wagle.

The prevention of Plague by killing the rat fleas with DDT has proved very effective. This method is now extensively used in the control of the disease. In Hyderabad State, where I was Director of Medical and Health Services from 1950 to 1953, we were able to control plague by spraying intensively all the endemic areas with DDT. A close watch, of course, should be kept, but it is hoped that it is practically exterminated there.

The scope of work in the Haffkine Institute has been increasing steadily, so that it has the Departments of Vaccines, Clinical Pathology, Virus Diseases including Rabies, Pharmacology, Entomology, Antitoxins and Sera, Chemotherapy, Blood Bank. It is a great Centre for the production of antivenin for snake bites. It is a great training centre for research workers, and has been recognised by the Bombay University for M.Sc. and Ph. D. degrees in Microbiology, Biochemistry, Organic Chemistry, Pharmacology, Pathology, Bacteriology, Parasitology and Zoology. It works in close cooperation with international organizations such as the World Health Organisation, Colombo Plan and others.

It has had very able men on its staff. After Haffkine, the Institute has had Bannerman, Liston, Mackie, Taylor, Sokhey, Wagle, and Soman as its Directors. Dr. Jhala is the present Director, who is well known to all of us. He is an eminent scientist, an indefatigable worker in guiding the work here with great wisdom and foresight.

It is one of the best organised Research Institutes in the East, and has a great future before it. On this occasion when we are celebrating its Diamond Jubilee I offer my sincere congratulations and best wishes for its continued success in the future as in the past.

2. *The King Institute of Preventive Medicine, Madras.*—In 1903–4, another Institute known as the King Institute of Preventive Medicine was started at Guindy, Madras, with the object of doing research on bacteriological and other problems, routine bacteriological work, as well as the manufacture of calf-lymph. Research at this Institute consists of work on virus diseases, including vaccine virus, sandfly fever virus, typhus, Dengue, Trachoma, Cholera, Plague, Malaria, endemic Fluorosis, water and sewage bacteriology and investigations on the algal flora in water supplies.

I may point out here, that it was the pioneer work of Pasteur, and Koch as well as that of Edward Jenner in Europe, which was the main source of inspiration in India, so that the laboratories which were established in India had for their function the task of doing research work, mostly bacteriological in nature, as well as routine bacteriological work for diagnostic purposes, and manufacture of vaccines especially vaccine lymph, which was greatly in demand on account of the prevalence of smallpox in the country.

After the establishment of the Haffkine Institute in Bombay in 1899, and the King Institute of Preventive Medicine at Guindy, Madras, in 1903–4, the following Institutes came into being in the country:

3. *The Central Research Institute at Kasauli in 1906.*—This served as a Provincial Laboratory for Punjab also.

Here Christophes carried out his classical studies on Malaria, and Cragg did his investigations on Typhus and Relapsing Fever.

4. *The Pasteur Institute of Southern India at Coonoor in 1907.*—The major portion of the funds for this Institute were supplied by an American philanthropist, Mr. Henry Phipps. It is the property of Pasteur Institute Association, a body registered under the Societies Registration Act of 1860. The management is in the hands of a Central Committee, of which the Director of Medical

Services, Madras, is the Chairman, and the Director of the Institute is the Secretary.

5. *The Pasteur and Medical Research Institute at Shillong, Assam, in 1917.*—It was originally opened as an antirabic Centre by government. The Assam Branch of the Tea Association gave a donation towards it. Some good research work has been done here.

A special feature of this institute is that it has a clinical research hospital attached to it, which is extremely useful for clinical investigations. Research work has been done here on the treatment of Kala-Azar by antimony compounds, and the treatment of Cholera and Dysentery by Bacteriophages. Work has also been done on Malaria, and Naga sores.

Dr. Pandit was the Director of this Institute, when I was in Assam from 1945 to 1947, as Inspector General of Civil Hospitals.

6. The *School of Tropical Medicine, Calcutta, in 1922.*—This was founded through the initiative of Sir Leonard Rogers. The research work here covers tropical Medicine, Pharmacology, Entomology, Chemistry, Pathology, Bacteriology, Protozoology, Haematology, Diabetes, Filariasis, Helminthology, Leprosy, indigenous medicines, etc. It is primarily a teaching Centre, where instruction is given for the Diploma in Tropical Medicine of the Faculty of Medicine and Hygiene, Bengal. There is a hospital attached to it for clinical investigations of tropical diseases.

7. *The All-India Institute of Hygiene and Public Health, Calcutta, in 1932.*—It was opened for the purpose of investigating methods of applying knowledge for medical protection to large groups of the community and of training students in these methods. There are six teaching sections, namely:

(a) Public Health Administration;

(b) Vital Statistics and Epidemiology;

(c) Microbiology, including Bacteriology, immunology and Serology, filterable viruses and the Rickettsias, Medical Entomology, Protazoology and Helminthology;

(d) Biochemistry, nutrition and Physiological Hygiene (including Public Health Chemistry and Physiology applied to Public Health);

(e) Sanitary Engineering;

(f) Maternity and Child Welfare.

Regular postgraduate courses are held for Diplomas, such as D.P.H., D.P.H. and Nursing, Nursing, and D.M.C.W. Facilities are also available to prepare for the D.Sc. degree in Public Health of Calcutta University. The Institute collaborates with the School of Tropical Medicine in its regular courses. The Calcutta Blood Bank is housed here, as well as the Biochemical Standardisation Laboratory. The Health Centre at Singur, which is attached to this Institute, offers facilities for teaching and research. This Centre is a controlled experimental station for applying knowledge to large community groups in rural areas. There is a similar centre at Chetla for the urban areas.

The Institute has done good research work on epidemic dropsy, Malaria, Tuberculosis, Kala Azar, Nutrition, Biochemistry, and the clinical aspects of Maternity and Child Welfare.

8. *The Malaria Institute of India, Delhi, in 1940.*—The Malaria Survey of India was constituted in 1926, and it took over the functions of the Central Malaria Bureau, which was then located in the Central Research Institute at Kasuali. In addition to this there was a large experimental station in a hyperendemic area in Karnal (in the Punjab) for the purpose of conducting field researches.

In 1936, this organization was entrusted with the responsibility of anti-Malaria work in Delhi. In 1940 the Government of India placed a suitable building in Delhi at its disposal and the name Malaria Institute of India was given to it. Subsequently the experimental station at Karnal was given up.

The Institute has a splendid record of work behind it. It is both a teaching and a research centre. The National Malaria Control Programme, which has now developed into National Malaria Eradication Programme is giving good results. Its success is due in no small measure to the work of the Malaria Survey of India over many years under the auspices of the Indian Council of Medical Research. The Institute is planning to extend its researches in the epidemiology and control of guinea-worm infection under the auspices of Indian Council of Medical Research. Apart from Malaria, it has assisted researches in Kala Azar, Filariasis, Sandfly fever, Dengue, Stegomyia.

In 1942, the Rockefeller Foundation donated the equipment of Dr. Paul Russell's Research Unit at Coonoor to form a branch of the Malaria Institute in South India.

9. *Nutrition Research Laboratories at Coonoor.*—These laboratories are housed at present partly in the Pasteur Institute, Coonoor, and partly in the buildings a few yards away from the Institute. They are being shifted to a new building which is located in the Campus of the Osmania University at Hyderabad (Dn.). I had a hand in getting this site for the new buildings, which are almost ready now and have been partly occupied. The new laboratories stand in an area where academic atmosphere prevails. There are the Physiology and Biochemistry Departments of the Medical College, as well as the Veterinary Institute, the Animal Husbandry Institute, the Agricultural College with its farms, and the newly built central laboratories of the Council of Scientific and Industrial Research of Hyderabad. There we may hope that the science of nutrition will advance rapidly in the widest possible manner.

The nutrition laboratories owe their inception to Sir Robert McCarrison, who worked there at first on the effects of faulty diet on Thyroid gland. He subsequently extended his researches to cover the pathological changes caused by defective diet in most organs of the body. His earlier work was on Beri-Beri, which was later designated as Deficiency diseases enquiry.

These laboratories were established on a semipermanent basis in 1925. Since then their activities have extended. Dietary Surveys have been carried out in many parts of the country. Work has been done on nutritive value of food stuffs, methods of vitamin testing, basic nutritional research, animal experimentation and clinical investigations.

10. *The Indian Institute of Medical Research, Calcutta.*—This was founded by private enterprise through the initiative of Dr. J. C. Roy. It has recently been taken over by the Council of Scientific and Industrial Research. Its name has been changed to the *Indian Institute for Biochemistry and Experimental Medicine.* It deals with problems of biochemical, immunological, pharmacological, physiological and biochemical nature, and has an excellent record of work to its credit.

11. *The Tata Memorial Hospital, Bombay.*—This was established in 1941. It is specially equipped for research in Biochemistry, Biophysics, Pathology, and clinical subjects, especially surgery and radiotherapy of Cancer.

There is also Cancer Research Centre attached to it, where Dr. V. R. Khanolkar and his colleagues are doing excellent work. I would also like to take this opportunity to congratulate Dr. Khanolkar for his fundamental work on Leprosy as well as Cancer.

12. *The Indian Institute of Science, Bangalore.*—This well-known Institute has expanded its activities. The departments of Biochemistry and Pharmacology here are engaged in research work, which has a direct bearing on Medicine. Work on Vitamins, Insulin, Pituitrin, Adrenalin, and Penicillin has been done here, as well as studies in sewage purification, sewage farming, Treatment of Brackish water and the hygienic treatment of industrial liquid wastes.

13. *Imperial Agricultural Research Institute, New Delhi.*—This was established in New Delhi in 1935, after the Institute at Pusa (Bihar) was badly damaged. The investigations here cover fields which are sufficiently allied to medical subjects. It is desirable to have a closer liaison between Medical and Agricultural Research than has been the case before.

14. *Virus Research Centre, Poona.*—In 1950, with the aid of the Rockefeller Foundation a virus Research Centre was established in Poona for studying problems connected with arthropod borne virus diseases.

This is a brief account of some of the Research Institutions in the country.

(*B*) *Medical Education and Medical Research*

Medical Education is closely linked with medical research. The two are really inseparable. This is specially true of Postgraduate Medical Education. In a Medical College, training of postgraduates stimulates the prosecution of research. It is such training which is necessary for the production of teachers, especially as the postgraduates are themselves required to undertake research work.

Research is a necessary condition laid down now by most universities imparting training and holding higher examinations, namely for M.D. and M.S. degrees. Candidates before appearing for these examinations have to write a thesis based on research work done by them, under the guidance of a senior teacher.

During the last ten years many universities have become alive to the necessity of developing postgraduate education and research in their colleges, and

in this movement the Government of India and the State Governments are also helping.

The following facilities have been provided in this field:

1. All-India Institute of Medical Sciences, New Delhi.—The Bhore Committee recommended the establishment of a Medical Institute for postgraduate training and research in medical studies. This was to be an Institute of an All-India character.

An All-India Medical Institute Committee was constituted by the Government of India in 1946 to put forward detailed recommendations for the establishment of such an Institute.

The present scheme under which the Institute is being established is estimated to cost Rs. 10 crores, and includes the provision for the establishment of a Medical College for undergraduate instruction as well as for postgraduate instruction and research.

I may say that, Dr. B. B. Dikshit, Director of this Institute, was formerly on the staff of the Haffkine Institute. He took up his appointment in New Delhi in 1956. The undergraduate teaching was started from 28th September 1956 with 50 students in temporary buildings. The permanent buildings for the preclinical department are almost complete and partly occupied. Very soon the construction of a new hospital, which will form the integral part of the new Institute, will be started.

It is hoped, that it will be a model Institute for undergraduate and postgraduate instruction and research.

2. Vallabhbhai Patel Chest Institute, Delhi.—This Institute was formally opened in 1953. It gives postgraduate courses in chest diseases under the Medical Faculty of Delhi University. The Institute is affiliated to the Delhi University and is situated on the University Campus.

During the short period of its existence it has already done a good deal of research work. It has 5 sections for purposes of research:

1. Bacteriology;
2. Pathology;
3. Biochemistry;
4. Cardio Respiratory Physiology;
5. Clinical Research.

3. Upgrading of Certain Departments in Medical Colleges.—The following departments in various teaching institutions have been upgraded for research:

1. Institute of Obstetrics and Gynaecology at the Government Hospital for Women and Children, Madras;
2. Institute of Venereology, Government General Hospital, Madras;
3. Institute of Anatomy, Stanley Medical College, Madras;
4. Department of Pediatrics, Madras Medical College, Madras;
5. Barnard Institute of Radiology, Government General Hospital, Madras.

I am happy to record that steps for the upgrading of these 5 departments in Madras were taken initially when I was Surgeon General there.

6. Physiology Department, Medical College, Patna (Bihar);
7. Department of Pathology, Andhra Medical College, Vizagapatnam;
8. Department of Plastic and Maxillo-Facial Surgery, Medical College, Nagpur;
9. All-India Institute of Mental Health, Bangalore;
10. Indian Cancer Research Centre, Bombay;
11. Thoracic Surgery Unit. Christian Medical College, Vellore;

Definite progress has been made in this field.

Research Institute for Industrial and Occupational Health.—You must have seen in the papers a recent announcement to the effect that the Central Government proposes to establish shortly a Research Institute for Industrial and Occupational Health. Its functions will be both teaching and research. The Indian Council of Medical Research has already a Research Unit of occupational health attached to the All-India Institute of Hygiene and Public Health in Calcutta, and there is a proposal to establish more such Units on a regional basis. The development of occupational health services in India was recently emphasized at the South East Asia Conference on Industrial and Occupational Health in view of the rapid expansion of industrialisation in the country.

As regards the training of physicians in Industrial Hygiene, the School of Tropical Medicine at Calcutta is going to introduce a 9 months' training course for them. The Schools of Social Sciences in Bombay and Calcutta are also providing training facilities for this purpose. This is a step, which is to be highly welcomed.

(C) Establishment of the Indian Research Fund Association and the Indian Council of Medical Research

In 1911, the Indian Research Fund Association was founded. This was an important step in the progress of Medical Research in India. The work of the Association was taken over by the Indian Council of Medical Research in 1949. Like the Indian Research Fund Association it has a Governing Body and a Scientific Advisory Board, and a number of Advisory Committees and Subcommittees have been appointed to deal with various branches of Medicine. They give advice on scientific matters, and go through various schemes for research which are submitted to the Indian Council of Medical Research. The Council approves an annual programme of research, sanctions grants-in-aid for research purposes, and in certain cases constitutes special enquiries.

The Indian Council of Medical Research has taken special interest in promoting research in Medical Colleges. The meetings of the Scientific Advisory Board and the Advisory Committees are now held in Medical Colleges, and they serve the important function of stimulating research work in these teaching institutions. It is a happy sign of the times, that most Medical Colleges are undertaking research work now, so that our aim of imparting medical education in an atmosphere of research is being fulfilled.

I have had the privilege of serving as a member of the Governing Body of the Indian Research Fund Association and subsequently as a member of the Scientific Advisory Board of the Indian Council of Medical Research for a number of years, and am well acquainted with the great contribution that the Council has made to the advancement of Medical Research in India. A number of States have appointed Research Committees for the promotion of Research and have granted some funds to the Medical Colleges in their areas for research purposes. More financial help from the States for this purpose is necessary. The Rockefeller Foundation has extended a programme of Fellowships for the training of necessary research personnel. A number of research units have been organised in the Medical Colleges, such as Polio-Research Unit at Grant Medical College, Bombay, a Neurophysiological Unit; Neurophysiological Unit at the All-India Institute of Medical Sciences at New Delhi; a Nutrition Research Unit at Seth G. S. Medical College at Bombay; and Liver Diseases Research Unit at the Medical College, Agra.

There has been a great increase in the number of Medical Colleges. There are 51 Medical Colleges in the country now. The number of research workers in them has considerably increased.

It is gratifying that younger members of the teaching staff of colleges are becoming more actively interested in research and we may look forward to greater output of research from these institutions in the future.

Cooperation with other National and International Agencies.—The Indian Council of Medical Research is in liaison with Council of Scientific and Industrial Research and the Indian Council of Agricultural Research. In recent years, it has been also closely connected with the research work done in the Armed Forces Medical Services, which was not the case before.

There are numerous problems common to them both, and mutual discussions and consultations are more beneficial.

It has also been cooperating with the State and Central Health Services in the control of certain diseases, such as Malaria and Filariasis and endemic Goitre. This cooperation is going to be still closer in future, particularly in regard to the problems of Nutrition, Maternity and Child Health, Environmental Hygiene and Communicable Diseases. The Community Project areas and National Extension Service Blocks also provide excellent facilities for useful collaborative studies.

In the international field, also, the Council has been in close cooperation with a number of agencies. The Rockefeller Foundation was very helpful in establishing the Virus Research Centre at Poona, especially for the study of problems of insect-transmitted virus diseases. The WHO has made a handsome contribution to the Cholera Research programme of the Council. It has also donated essential equipment for the Poliomyelitis Research Centre, and is extending substantial help in the solution of the problem of Protein Malnutrition. WHO cooperation is available also in the control of Tuberculosis and Trachoma. The Technical Cooperation Mission has donated special equipment to the Nutrition Research Laboratories, Coonoor.

The international agencies (Technical Cooperation Mission, the Colombo Plan, the Rockefeller Foundation and the WHO) also provide scholarships to

the research workers for higher training abroad and to teachers in Medical Colleges to raise the standard of medical education.

(D) Role of the Medical Council of India in Promoting Research

The Medical Council of India has been functioning since 1934. Till 1950, it concerned itself mainly with the undergraduate education. But in recent years, it has taken more active interest in postgraduate medical education and research, these subjects being closely related to each other. On 5th April 1958, the Council passed the following resolution:

> Resolved that information be obtained from each Medical College and each University in India regarding the research programmes carried out by the Head and other Assistants of each department of the College and other postgraduate departments and institutions. Each Medical College and each University be requested to go into the question of supervision of research work carried out in its department and furnish information annually to the Council.

On a previous occasion, on 27th September 1957, the Council resolved to recommend that the Universities should set up Boards of Postgraduate Medical Education and Research within the Universities to stimulate and organise research.

I am sure these measures would undoubtedly have a very beneficial effect on further progress of research in the Universities and Medical Colleges.

Medical Research in India Today.—The whole field of Medical Research in India was surveyed by the Health Survey and Development Committee in its report in 1946 and it made certain important recommendations, which have been kept in view by the Indian Council of Medical Research in framing its programme of Medical Research in the Second Five-Year Plan. The main objects of this programme are to gain further knowledge in the essential fields of Medicine, both curative and preventive, and the application of this knowledge in the urgent Medical and Public Health problems in the country.

Their objective is to be achieved (*a*) by the strengthening of the facilities available for research in the existing institutions in the country in order that they may render greater service than in the past in their respective spheres of study; (*b*) by creating new Institutes for research in specific fields; (*c*) by the training of research workers by granting Fellowships and by other suitable methods; (*d*) by forming a cadre of research workers; (*e*) by initiating research programmes for the solution of many urgent problems in the field of medicine and public health; and (*f*) by establishing close cooperation with various national and international agencies in regard to all problems relating to research. This indicates the policy which is guiding medical research in India today, as determined by the Indian Council of Medical Research. Many specific problems of an urgent nature are under investigation, namely those pertaining to nutrition, environmental sanitation, Maternal and Child Health, Industrial Health, Drug Research, and measures for the control of communicable diseases, such as Leprosy, Tuberculosis, etc. It is also necessary to promote fundamental research and Indian Council of Medical Research is helping in this matter too.

Research in Teaching Hospitals and Medical Colleges, as I have already said, has received special attention of the Indian Council of Medical Research.

I may add that the increased number of Medical Societies and Journals in recent years is also helping materially the cause of medical research. The quality of research papers published and of the discussions in the meetings of the learned Societies are at a high level and are steadily improving.

There are certain trends in the field of Medical Research which I would like to emphasise briefly.

Modern Trends:

1. The need for developing properly staffed and well equipped research Units in Medical Colleges and teaching hospitals has been strongly felt, and although good progress has been made in recent years, this line of work should be further pursued with increasing vigour. Various Research Institutions should be brought into closer touch with the Universities.

2. The subjects of Bochemistry, Biophysics, Endocrinology Genetics, Physiology, Parasitology, and Mycology are of fundamental importance, and need to be further encouraged.

3. In view of the widespread malnutrition in the country, it is necessary to impart education in Nutrition as part of the Health as well as general education in the country; to protect the vulnerable groups of the population, namely growing children; to control specific diseases of nutrition, namely Endemic

Goitre, Lathyrism and Fluorosis, which are prevalent in localised areas in the country; and to organise Nutrition work as an integral part of the State Health Department. It is imperative to have a comprehensive Food and Nutrition policy for the country.

4. In undertaking programme of research in communicable diseases, the new knowledge gained should be applied for their prevention and eradication as expeditiously as possible. This has been done in the case of Plague and Malaria with encouraging results, and the same policy should be adopted for other communicable diseases, such as Tuberculosis, Virus Diseases etc.

These remarks apply to the entire field of Preventive Medicine.

5. In the field of Maternal and Child Health, there is need for great increase in research, as well as application of knowledge already available. Although there is a definite diminution in the maternal and infantile mortality rates in the country on account of vigorous work of the Maternity and Child Health Organizations in recent years, the rates are still high as compared with the Western countries. They are perhaps still the highest in the world. We know that the important causes of maternal mortality are infections, anaemias and toxaemias of pregnancy, and as regards infantile mortality, the main causes are prematurity, gastrointestinal and respiratory diseases. There is need to apply the existing knowledge fully for the protection of mothers and children against these ailments as well as for the promotion of positive health as expeditiously as possible. The services to mothers and children, I am glad, have already been made an integral part of the public Health Service in all the States. This link should be further strengthened.

The children of today are the citizens of tomorrow, and we should give the highest priority to their welfare in our programme of research.

6. *Fundamental Research.*—Fundamental Research in Medicine and allied subjects also gets support from the Indian Council of Medical Research; but it is particularly in this field that the Universities should come in and offer their helping hand, for it is their special province. It is hardly necessary to emphasise the importance of fundamental research as it is on this, in the last resort, that all applied research is based. There should be a liaison between the Medical Colleges, and the Departments of basic sciences, namely, Chemistry, Physics, and Biology of the Universities. It is the application of the knowledge of Chemistry and Physics to biological problems that advancement of medicine has taken place. I trust that the Institute of Biology envisaged by the Indian Council of Medical Research and in which Dr. V. R. Khanolkar has taken such keen interest will soon be established.

7. The study of problems connected with *Preventive and Social Medicine* demands greater attention. I have already referred to the control of communicable diseases. Apart from this, it is necessary to devote more attention to environmental sanitation. As you know, during the latter part of the First Five-Year Plan, the Central and State Governments have launched a National Water Supply and Sanitation programme which involves an expenditure of about Rs.25 crores for the control of water and filthborne diseases such as Cholera, Typhoid and Dysenteries. It is, of course, established that safe water supplies and sanitary methods of excreta disposal are essential for this purpose. These essential amenities however are not available in all parts of this country.

The success of this programme depends on the application of known scientific methods in public health work. There are various factors concerned, namely, customs and habits of the people, climatic variations, economic conditions, etc. These problems are awaiting solution.

8. *Social Medicine.*—The scope of medicine is enlarging. A new discipline, known as Social Medicine is emerging and needs immediate attention. We must study disease in relation to social as well as physical environment, and this includes study of its social, cultural, economic and historical aspects.

9. *Industrial Medicine.*—On account of the rapid growth of industrialization, the health of the industrial worker needs special consideration.

10. *Mental Health and Disease.*—The study of Mental Health and disease which is now being undertaken also needs to be pursued with increasing vigour, and facilities for this should be further extended.

The progress made in the field of Medical Research during recent years is very encouraging. A study of the review of this work from 1950–57 as recorded by the Indian Council of Medical Research is very heartening. As rightly stated there, after Independence the Indian nation has dedicated itself to an unremitting struggle for the improvement of socioeconomic and cultural standards of its people with the object of leading them to a more enlightened and

gracious life. In this dedication, the task of improving the health of the people is very vital. For this purpose, the Indian Council of Medical Research has been supplied with generous financial help. The Council received a grant of Rs.12 lakhs only during the First Five-Year Plan, in addition to its annual standing grant of Rs.13 lakhs. During the Second Five-Year Plan, a provision of Rs. 412 lakhs has been made. A majority of the projects in the Second Plan have been taken up, and the Indian Council of Medical Research works in close association with the Ministry of Health.

Time would not permit me to mention the names of all the distinguished workers in this field who have made important contributions in this field. I would, however, like to congratulate Dr. C. G. Pandit, Director of the Indian Council of Medical Research, for the excellent work he has been doing. He is a distinguished Scientist, with a wide vision, and great organising capacity, and has helped to advance the cause of Medical Research in the country to a remarkable extent during his tenure of office. I wish him every success.

Concluding Remarks

This briefly is the story of men and organizations which have helped the growth of Modern Medicine and led to the present state of medical research in India. The work of these pioneers has had a direct bearing on the control and prevention of disease.

India for various reasons has been the hotbed of a number of communicable diseases. It was therefore natural that we should in the initial stage obtain knowledge of their causation, which would help us to control them. We have a creditable record in this field of endeavour. Good work has been done in Plague, Leprosy, Malaria, Cholera, Virus diseases, Tuberculosis, and Trachoma. As a result of this, there is a definite reduction in the incidence of some of these diseases. Plague, with which Haffkine's name will always be connected, has been controlled, and the endemic areas are practically free from it, although we cannot say that it has been eradicated completely. Tuberculosis and Leprosy are being handled successfully. Studies in Nutrition have given us valuable knowledge as to the main causes of malnutrition in the country, and now it is up to us to prevent it.

Similarly good work is being done in Cancer, Indigenous drugs and various physiological and biochemical problems.

In the evolution of Medicine we can trace a number of stages; an early stage in which it emerged from magic and religion into an empirical art; a stage in which the importance of its study as a phenomenon of nature was recognized; a stage in which Anatomy and Physiology of the human being drew attention; a stage in which causes of ailments were investigated; and finally a stage, as we witness today, when knowledge thus gained is used not only for the cure but also for the prevention of disease. This is a revolutionary change, and has completely altered our attitude towards disease. It was Descartes, who once truly said that we could be freed from an infinity of ailments, both of body and mind, if we had sufficient knowledge of their causation, as well as knowledge of all the remedies, which have been provided by nature. It is this knowledge that we are speedily and steadily gathering now-a-days.

All this work must continue with unmitigated zeal in India. The field of medical research in this country is enormous and a great deal still has to be done. It has been a great pleasure to me to participate in the Diamond Jubilee Celebrations of the Haffkine Institute, which has been the pioneer in medical research Institutes in this country, and has a fine record of work and traditions behind it. Its founder, Dr. Waldemar Moredecai Waliff Haffkine, was a great scientist, who ranks with Pasteur, Koch and Metchnikoff as a great pioneer in Bacteriology. In preventing disease and suffering he was one of the greatest benefactors of mankind. It would be well to emulate the noble example set by this Institute. I take this opportunity to congratulate the Director of the Institute, Dr. Jhala, and all his colleagues for the very fine work they are doing and the excellent manner in which the Diamond Jubilee has been celebrated. I wish the Institute the very best of success in the humanitarian task. We hope it will continue to add to our knowledge in the future as in the past which would help to remove suffering and pain.

This reminds us of the fact that the aim of medical research is essentially humanitarian. Medicine from times immemorial has been a synthesis of Science and the humanities. In this respect it has a definite message for mankind; namely, that Scientific knowledge should be used for the welfare of man-

kind and not for its destruction. It is necessary to emphasize this in this atomic age through which we are passing.

In the fight against disease and in acquiring new knowledge for this purpose there are three important weapons, which we should have in our amentarium; namely, *Education*, *Organization*, and *Cooperation*. I use these terms in the widest possible context. These should be our watchwords. If we continue to work in this spirit, we can rid not only our country, but all regions of the earth, of disease and suffering; we can raise the standard of positive health of the people, which will result in their greater happiness and prosperity. And thus before long we shall see the dawn of that day, of which Shelley sings so nobly:

"Happiness,
And Science dawn though late upon the earth;
Peace cheers the mind and health renovates the frame;
Disease and Passion cease to combat there,
Whilst mind unfettered o'er the Earth extends
Its all-subduing energies, and wields
The Sceptre of a vast dominion there."

5. SINO-SOVIET BLOC

Senator HUMPHREY. A series of specialized problems arises in connection with present and/or prospective international medical contacts with:

(*a*) the Soviet Union;
(*b*) Soviet bloc nations;
(*c*) Mainland China; and
(*d*) countries within Red China's bloc.

REFERENCES TO SOVIET UNION

It will be recalled that on December 1, 1958, I met in Moscow with Premier Nikita Khrushchev, Chairman of the Council of Ministers of the U.S.S.R. Part I—page 285, bears upon this meeting and subsequent developments.

At my request, thereafter, the project director arranged for the compilation by the Department of State of a publication "United States Exchange Programs with the Soviet Union, Poland, Czechoslovakia, Rumania and Hungary." This was issued as a committee print by the Senate Committee on Foreign Relations on August 20, 1959, and contained extensive information on medical and other exchange programs with the Soviet bloc, as of that time.

CONTACTS WITH SOVIET UNION

The subcommittee has received many messages from American physicians and other biomedical scientists concerning contacts with their colleagues of the Soviet Union. Almost without exception, U.S. scientists have commended the concept of two-way exchange of information and visits.

LETTER FROM DR. WALTMAN WALTERS

For example, Dr. Waltman Walters, of the Surgical Section of the Mayo Clinic and the Mayo Foundation (the latter, it should be recalled is part of the Graduate School of the University of Minnesota), was one of four distinguished American physicians who was invited to attend the 27th Congress of Surgery of the U.S.S.R. from

May 23–28, 1960. The other physicians were Dr. Michael de Bakey of Houston, Tex., Dr. Henry Swan of Denver, and Dr. Ralph Deterling of Boston.

Dr. Walters kindly conveyed to me a copy of his valuable report on Russian surgery and on the Russian Surgical Congress. In his concluding remarks, on pages 32–33, Dr. Walters, after referring to Soviet physicians' hospitality and professional courtesy, observed:

All in all, it was an instructive and valuable trip, and one of the most interesting that I have made to another country. We would like to return for a longer visit when the international situation improves. Regardless of this, the exchange of visits of medical scientists from both countries I hope will continue, for we have much to learn from each other. I have found in my many scientific trips abroad, to Europe, the British Isles, Japan, Hong Kong, South America (Venezuela), Cuba, and the West Indies, that "people are people" when allowed to follow their own feelings. Doctors of medicine are admired and respected by each other, and by people of all countries who appreciate what advances in medical sciences have done to improve their health and the health of their families. They appreciate that these advances have not come from any one group of doctors or those of any one country but from the hard, intelligent work of many from many countries whose discoveries, researches, methods of therapy, and results of treatment have been disseminated throughout the world by means of medical scientific publications and the exchange of visits between the medical scientists of most countries during scientific medical meetings and on other occasions when independent travel is possible.

The different ideologies or philosophies of governments of various countries or the particular political climate which exists at the time (blowing hot or cold) should not prevent these meetings and these communications so that the cooperation and understanding between members of the medical profession can continue—and the leaders of the governments should see that the political climate does not prevent such communication.

I would like to see it made possible by the government of every country for some of their outstanding medical scientists to visit medical scientists and medical institutions in every other country on invitation. If a proper choice were made with the approval of some of the top leaders of the best medical organizations in each country, nothing of an adverse political nature should occur; on the contrary, great benefit to the health of all people would result.

CONTACTS WITH COMMUNIST CHINA

Senator HUMPHREY. Contacts have been minimal between the free world and the Chinese Communist Government and its satellite states.

The United States does not, of course, recognize Red China, which was declared an aggressor by the United Nations and still has not acted to purge itself of its aggression.

The following are two replies, one by the Department of State and one by the Public Health Service, to inquiries as to scientific contacts with Red China. From the initial reply, there have been deleted only certain paragraphs bearing upon a non-related matter.

The subcommittee, as such, has taken no position whatsoever as regards scientific or any other contacts with Red China. This is an issue which is highly complex and which bears substantively on a field within the essential jurisdiction of the Committee on Foreign Relations.

DEPARTMENT OF STATE,
Washington, D.C., August 18, 1959.

DEAR SENATOR HUMPHREY: * * *

* * * any exchange of visits of medical scientists between the United States and Communist China must be evaluated in the light of basic U.S. policy objectives. A fundamental aspect of U.S. policy is a decision not to authorize travel of American citizens to the China mainland, even in cases like this where, if

normal conditions existed, worthwhile results might be achieved. Obviously normal conditions do not exist. An important factor is that in the absence of diplomatic relations with Communist China, it is not possible for the Government to provide the normal and customary protection to Americans traveling on the China mainland. In addition, the Chinese Communists have consistently maltreated Americans and continue to hold American citizens in jail as political hostages, despite their pledge of September 10, 1955, to release them expeditiously.

Our policy prohibiting travel to the China mainland is also made necessary by the attempts of the Chinese Communists to use the establishment of cultural relations with the United States as a means of gaining respectability and acceptance in the family of nations. Travel of certain United States citizens to mainland China has been zealously promoted by the Communists as a step in this direction. Nevertheless, Peiping in any case would probably not issue visas to these American scientists. The Chinese Communist practice has been to grant entry permits only to those Americans who directly or indirectly serve their political and propaganda interests. While they have admitted only one of the designated representatives of 31 accredited American news-gathering organizations, they have welcomed without hesitation many Americans who traveled there in violation of passport restrictions: for example, Anna Louise Strong, Virginius Frank Coe, and the 42 "students."

As for visits to the United States by medical scientists from Communist China, the immigration laws governing the ineligibility of persons applying from the Soviet bloc would also apply. It should be emphasized that the law, embodying the intent of the Congress, requires that whenever the exception of a waiver is made, each individual case must be examined at the time of the visa application in the light of the national interest and the prevailing circumstances. However, no Chinese Communist has applied for an American visa since Peiping sent a deputation to the United Nations in November 1950 in connection with charges of aggression.

In the matter of the exchange of medical information with Communist China, there exists considerable scope within the framework of present Government regulations. With the appropriate licenses, American individuals and institutions can import from Hong Kong and other places such as London a wide variety of Chinese Communist medical publications for bona fide research purposes. In particular, the National Library of Medicine (and its predecessor, the Armed Forces Medical Library) has for several years imported a substantial volume of Chinese Communist medical journals, books, and monographs which are available to the public.

I hope this information will be helpful to the International Health Study.

Sincerely yours,

WILLIAM B. MACOMBER, Jr., *Assistant Secretary.*

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
PUBLIC HEALTH SERVICE,
Washington, D.C., July 28, 1960.

DEAR SENATOR HUMPHREY: The Department of State has transmitted to the Public Health Service a copy of your letter of May 13, 1960, concerning the participation of Public Health Service officials at meetings attended by persons from unrecognized regimes and asking for the views of the Public Health Service in this matter.

In respect to the request for a listing of medical topics on which scientific exchanges with Communist China would be valuable, we would have at this time only general observations to make. The information available to scientists in the United States concerning the work of Communist China in the health and medical sciences is scanty and out of date, and our curiosity as to the state of their scientific work and their current progress would include the whole field of biomedical research. Specifically, however, there are three major areas where we feel some means of interchange of information would be most useful:

(1) Communist China constitutes a substantial portion of the world's population and occupies a major expanse of the world's land masses. The exclusion of such a large geographical area and population group from continuing epidemiological assessment in relationship to the development and movement of infectious diseases, particularly in this day of jet transportation, constitutes a major gap in the world's cooperative ventures in this

area. The history of the recent Asian flu development emphasizes the disadvantages that the Western World labored under because of the lack of current epidemiologic intelligence from the mainland China area and the absence of close scientific relationships.

(2) A major area of development in the medical sciences is the study of the variation in disease incidence and prevalence amongst large and contrasting population groups. Such differences associated with environmental, cultural, and other factors provide a substantial basis for advancing knowledge concerning disease causality. Many disease problems which have resisted laboratory approaches have shown a promising tendency to yield to such large-scale demographic studies now included in the broad term of "geographic pathology." There is currently considerable effort to extend these techniques to the study of cancer and cardiovascular problems. The incorporation of the large and diverse population groups in the mainland mass of China into such worldwide studies might yield valuable information.

(3) Progress in science is best achieved by the free interchange of information amongst scientists on all topics. The separation of Western science from the progress and developments in mainland China creates a substantial gap in the worldwide pattern of scientific interchange. It would be most useful to gain a current and continuing view of the state of scientific development, direction of research effort, and the progress made in the medical sciences in mainland China as a part of the worldwide picture of scientific effort.

Beyond these general areas, detailed information concerning the specific medical and health problems in mainland China, their attempts to solve them—their failures as well as their successes—would be most useful in the total assessment of Red China's potentiality and contributions in medical science.

I hope that these comments will be useful to you in the analysis of the situation.

Sincerely yours,

JOHN D. PORTERFIELD,
Acting Surgeon General.

BIOMEDICAL JOURNALS IN MAINLAND CHINA

Senator HUMPHREY. In part I, page 215, the Excerpta Medica Foundation conveyed information as regards abstracting of information from medical journals of Communist China.

As a supplement to that information, there follow:

(*a*) An article from the May 31, 1959, issue of the "New York Times" entitled "U.S. Plans to Sift Peiping's Science," and

(*b*) A memo of July 20, 1959, on "Chinese Scientific Medical Literature," assembled by Mr. Kay Kitagawa, of the National Science Foundation staff. This memorandum was conveyed at our request by Mr. Scott Adams, program director, Foreign Science Information, Science Information Service.

(c) An editorial from the April, 1960 Bulletin of the American Institute of Biological Sciences.

[From the New York Times, May 31, 1959]

U.S. PLANS TO SIFT PEIPING'S SCIENCE

BUT HOUSE FUND CUT IMPERILS PROGRAM OF TRANSLATING CHINESE PERIODICALS

(By John W. Finney)

WASHINGTON, May 30.—The Government for the first time is moving to keep scientists informed on scientific developments in Communist China through translation of Chinese scientific publications.

The National Science Foundation, as the Government's central agency for dissemination of international scientific information, is planning in the coming year to start translating scientific publications from Communist China.

The foundation's plans have a significance far beyond the objective of dissemination of scientific information for they constitute one of the first official recognitions of the potential scientific challenge presented by the Peiping regime.

WOULD AVOID SURPRISE

By embarking now on a program of translating Chinese scientific literature, foundation officials frankly hope that the United States will not be caught by surprise by scientific developments on the Chinese mainland, as occurred in the case of Soviet Union.

The foundation's preliminary program for translation of Chinese scientific research results has become imperiled in recent weeks by economy cuts made by the House in the foundation's budget for the coming fiscal year.

Unless the House cut is restored in the Senate, the foundation will have to abandon its initial attempts at translation of Chinese communist publications. It also will have to scale down a planned expansion in the translation of Russian publications.

TRANSLATION FROM RUSSIA

One impact of the Soviet Sputniks has been a marked increase in translation of Soviet scientific literature, with the Government now sponsoring translation of seventy publications, half of them by the foundation.

The foundation had been planning to increase its share to 45 in the coming year as part of an overall Government program to raise the number to 100. Under the House cut, the foundation will have to abandon plans to translate five of the additional Soviet scientific journals.

With Communist China, the foundation had been planning to start off on a small scale with translation of two or three journals as a pilot project pointing toward a rapid expansion in 1961.

The modest program was explained by foundation officials as resulting from difficulties posed by translation from the Chinese. One of the most critical problems is the lack of competent translators, and to meet this problem the foundation is exploring the possibility of having the journals translated in some foreign countries, such as Nationalist China, Japan, or India.

According to a survey by the foundation, there are about 450 scientific periodicals being published in Communist China. The foundation does not plan to translate all of these, but it does hope that ultimately a good proportion of the "significant" Chinese scientific literature will be made available.

Over 200 Communist Chinese scientific periodicals are now being received by Government libraries in the capital, such as the Library of Congress.

MOST UNTRANSLATED

Most of these publications, according to Dr. Burton W. Adkinson, head of the foundation's Office of Scientific Information, are lying on the shelves untranslated—a condition reminiscent of the inattention provided Soviet scientific literature preceding the appearance of the first Soviet earth satellite.

In emphasizing the necessity for proceeding now with a Chinese translation program, Dr. Adkinson noted in an interview that while the situation was not critical now, "in a few years Communist China may suddenly appear on the scene as one of the powers in the scientific and technical world."

"If we don't start translating their literature today," he said, "we are likely to be in the same position we were in 5 years ago with the Soviet Union, where we had a mass of untranslated material and were caught by surprise by Soviet scientific and technological advances."

As appraised by Government technological progress in Communist China is hampered by lack of trained personnel. It is believed, however, that this is only a temporary handicap, since the Peiping Government is known to be training thousands of scientists, engineers, and technicians.

An indication of the expanding effort in Communist China cited by officials is the report that the Chinese Academy of Sciences now has 68 research institutes—more than double the number existing in 1952.

MEMORANDUM ON

CHINESE SCIENTIFIC MEDICAL LITERATURE

Sources of information

The following eight sources in order of their importance are our principal information media on Chinese Communist scientific medicine: (1) The Ministry of Health's journals and books published by the People's Medical Publishers, Peking; (2) medical college and university journals; (3) Foreign Broadcast Information Service, "Daily Report, Far East" (official use only); (4) U.S. Hong Kong Consulate General, "Survey of China Mainland Press"; (5) National Library of Medicine, "Current List of Medical Literature"; (6) U.S. Joint Publications Research Service's translations and special studies; (7) Soviet review articles; and (8) Japanese review articles. Items 1 and 2 have been readily available from booksellers in Hong Kong and England.

Journal publications

(See "Table of Chinese Medical Journals" below.)

Of the 81 known journals in the field, 57 are received at the National Library of Medicine, representing a total of 74 percent. Primary journals in modern scientific medicine cover the fields of internal medicine, surgery, ophthalmology, pediatrics, obstetrics and gynecology, dermatology, tuberculosis, stomatology, radiology, pathology, neurology, and psychiatry and otorhinolarngology. Nearly all of these journals contain a table of contents and a few summaries in English. There are no Russian language summaries.

Of the 81 publications listed in the table, 49 of them or 60 percent of the present known output (all items below I, D) are at present of little scientific interest, while the remaining 37 journals contain some articles of scientific value. A further breakdown of the first four categories under Primary Journals (item I, A to D) reveals that up to 40 percent of the articles deal with such topics as traditional Chinese medicine; statistics on pest eradication, color blindness, and venereal diseases; application of known Western therapeutic techniques on Chinese patients; and political exhortations. Since the aforementioned four categories of journals contain an average of 15 articles per average quarterly frequency, there are approximately 2,220 articles per year, of which 1,332 represent scientific medicine and 888 do not have current significance to the West.

Table of Chinese Medical Journals

	Output	Received at the National Library of Medicine
I. Primary journals:		
A. General	4	4
B. Colleges and universities	5	4
C. Preclinical sciences (anatomy, physiology, etc.)	10	7
D. Scientific medicine and related subjects	18	15
E. Traditional medicine (moxibustion, acupuncture, etc.)	13	11
II. Secondary publications:		
A. Abstracts	10	4
B. Express news	1	0
C. Translations	6	0
D. Index	1	0
III. Popular medicine	18	15
Total	81	57

Book publications

Some 2,000 books have been published by the People's Medical Publishers since 1953. Less than one-fifth of these publications have been in scientific medicine, and a majority thereof have been translations from Western and Japanese books. Translations from Soviet scientific medicine have principally dealt with the Pavlovian theory of higher nervous activity.

Evaluation

Generally speaking, Chinese scientific medicine by Western standards is still undeveloped. None of their primary journals contain articles of scientific

quality comparable to that appearing in corresponding Western or Japanese journals. To date, the major Chinese contribution appears in some of their scientific descriptions and analyses of native materia medica and endemic diseases. Citations and bibliographies appearing in many journal articles are mainly from the 1920–40 period. This possibly indicates that the Chinese Communists have had difficulty in obtaining the contemporary literature from the rest of the world including their Soviet allies. With one or two possible exceptions, there are no journals or books to date which justify a U.S. Government sponsored cover-to-cover translation. The exceptions would be limited to indigenous materials, which from a pharmacological or geomedical point of view would supplement world knowledge (e.g., native medical botany, or diseases peculiar to the Chinese mainland).

Plans for abstracting and indexing

While there are no present plans for translating Chinese medical literature, "Excerpta Medica" has explored the possibility of publishing up to 5,000 selected abstracts annually. These abstracts would be selected and edited by Western specialists at the University of Hong Kong. The National Library of Medicine's forthcoming "Index Medicus" will cover the Chinese medical literature more thoroughly than previously.

Information problems

The principal difficulty today is the absence of normal diplomatic relations with Mainland China and the provisions of the Trading With the Enemy Act. Thus, such things as establishing exchange agreements, purchasing needed publications, and keeping up with the current literature have been seriously hampered.

EDITORIAL FROM AMERICAN INSTITUTE OF BIOLOGICAL SCIENCES BULLETIN, APRIL 1960

The Overseas Chinese Daily, frequently a voice of the Communist Chinese regime, recently carried a headline which is reproduced here. I am told that a reasonably accurate translation is "Scientific Research Forces Strong in China." The article so headlined carries its share of ideological payola but it cannot be written off as only propaganda. If claims made are even fairly accurate, then the Peiping government has accomplished some minor miracles in scientific research and education.

The Chinese claim that there are now 580,000 students in mainland universities in the fields of pure science, engineering, agriculture and medicine. There is said to be a total faculty strength of 50,000 in these fields. Institutes of higher learning are supposed to have established more than 1,000 research laboratories within the last 2 years and to have "produced thousands of scientific papers."

Discounting political overtones or nationalistic pride which may be reflected in these data, it is clear that a new and important producer of scientific research is emerging. We cannot and should not ignore what our Chinese colleagues are doing. The observation that science is not contained by political boundaries is trite but true.

For more than a year before Soviet scientific prowess was so dramatically demonstrated, the AIBS had sponsored an information exchange program between Soviet and United States biologists. Several of the better known Soviet biological journals were in cover-to-cover English translation in a project supported by the National Science Foundation. Seven of these journals are now sponsored by the AIBS and quite a number of individual books and monographs have been or are being translated. Comparatively little is now being translated from Chinese into English and there are many who consider mainland Chinese research too inconsequential to warrant even the little that is done. This is quite possible, of course, but not if one places credence in the article quoted above. Perhaps we should take another look.

The AIBS proposes to establish a modest program in translation of mainland Chinese biological materials. The consensus of well-informed persons both in this country and in Asia is that few, if any, journals now merit cover-to-cover translation. The problems, rather, are ones in selecting and translating articles of more than just passing interest, in preparing critical review articles, and in

informing English speaking biologists of the lines of research their Chinese colleagues are following. The AIBS project, briefly, would produce the following:

1. Translated tables of contents of as many Chinese biological journals as can be obtained.
2. Translations of specific articles as demand for them develops.
3. Critical review articles on the status of Chinese research in major biological disciplines.

Such a program seems to embody the barest essentials needed for us to learn what our mainland Chinese colleagues are contributing to biological science. Certainly it is to be hoped that eventually there can be free exchange of basic scientific information between mainland China and the United States as there now is, or should be, between scientists of the rest of the world.—HIDEN T. COX.

THE SCIENCES IN COMMUNIST CHINA

Senator HUMPHREY. This section concludes with reference to two helpful developments in keeping informed concerning scientific developments in mainland China.

1. In the December 10, 1960, issue of the splendid periodical, Science Newsletter, issued by Science Service, there was presented the complete text of a report which had appeared in Chinese and in English in a Peking publication entitled "Scientia Sinica." This report listed a long series of Chinese Communist claims of accomplishments in all of the natural sciences during the 10 years of the regime. With the financial cooperation of the National Science Foundation, Science Newsletter was able to publish the report in full. The printing was preceded by a sound statement of background and caution which helped the reader to appraise the "picture" painted by the Peking document.

2. On December 26–27, 1960, at the annual meeting of the American Association for the Advancement of Science, a valuable Conference on Scientific Communication was cosponsored by the National Science Foundation and by 10 professional scientific organizations. The theme was "The Sciences in Communist China."

One of the papers presented at the meeting was devoted to the field of medicine and public health. The following is an excerpt from this report by William Y. Chen, M.D., senior surgeon, U.S. Public Health Service, now working at the Coffman Research Center, Hagerstown, Md. The excerpt may, I believe, be of interest to many public health experts in the United States. The excerpt relates to the work of the Central Research Institute of Health in Peking.

The Institute is mainly concerned with research directly or indirectly related to people's health. It consists of six departments, namely, microbiology, sanitary engineering, nutrition, pathology, pharmacology, and Chinese herbs. It has a branch institute in Nanking entirely devoted to the investigation of parasitic diseases, and a branch institute in Hainan Island studying malaria. At present there is a staff of more than 250 scientific research workers.

Much of its investigation in the department of sanitary engineering is on the problem of general sanitation and industrial ventilation and cooling. Many experiments have been conducted on the use of natural raw materials to produce insecticides such as DDT, 666, etc. Investigation of various parasitic and infectious diseases such as schistosomiasis, malaria, etc., conducted or sponsored by this Institute have been reported above. Much research has been done on the nutritional value of wild vegetables in respect to their vitamin content. The study of milk substitutes using beans, rice, and other foodstuffs has been pursued intensively. Much of the pharmacological research has been in the synthetic production of native antimalarial and anti-TB drugs. Recently the study of physiques of the people has caught their interest in an effort to promote better physical health and in meeting the needs of national defense and production.

Section D

ACTIVITIES OF SEVERAL STATES AND CITIES IN MEDICAL RESEARCH AND IN INTERNATIONAL COOPERATION

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ACTIVITIES OF SEVERAL STATES AND NEW YORK CITY IN MEDICAL RESEARCH AND IN INTERNATIONAL COOPERATION

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Activities of Several States and of New York City in Medical Research and in International Cooperation

Senator Humphrey. In referring to official U.S. medical research programs thus far, reference has only been made to activities of agencies of the U.S. Government.

The fact is, however, that there are several important medical research programs conducted—in whole or in part—by States of the Union in addition to a significant program by the city of New York. In order that the record may be complete, I am including at this point certain information with regard to these official programs. While they are almost exclusively of a domestic nature, the indirect international implications of this research cannot be ignored.

I believe that all of these States and the city of New York which are referred to herein should be commended for their efforts.

Every State of the Union and every municipality within the United States pays a cost, both tangibly and intangibly, from sickness and premature death among its citizens. Perhaps the most obvious of such costs are the sums spent for institutionalizing sick individuals who are the victims of both mental and physical ailments.

Compared with sums spent for these institutional costs alone, the amounts devoted to medical research are, in my judgment, comparatively small. Yet, the fact that there are at least the beginnings of important State medical research programs is a welcome sign.

A. NIH Summary on Medical Research by Five States

The following brief summary is based on a survey by the National Institutes of Health on medical research in five States of the Union. The preliminary results of the survey were conveyed by Herbert Rosenberg, Chief, Resources Analysis Section, Office of Research Planning, NIH, to our project director at the subcommittee's request.

These notes point out that five States—California, Connecticut, Florida, Michigan, and New York—spent over $16 million in 1958 for medical and health-related research. This information will, I believe, be of real interest to our colleagues and for that reason I am having it printed here at this point. I hope the limited survey will be supplemented in time to come by data as to research programs of other States.

Notes on Medical and Health-Related Research in Five States, 1958[2]

Summary

In 1958, five States—California, Connecticut, Florida, Michigan, and New York—spent approximately $16.4 million for medical and health-related research. Roughly 75 percent of this amount was supported by State funds, about 22 percent from Federal funds, and 3 percent from private organizations.

[2] This is a résumé of a preliminary report made by Herbert H. Rosenberg, Chief, Resources Analysis Section, Office of Research Planning, NIH, to the Committee on Research Policy, APHA, on Apr. 22, 1959.

TABLE 1

SUMMARY OF MEDICAL AND HEALTH-RELATED RESEARCH EXPENDITURES OF 5 STATES, BY SOURCE OF SUPPORT, 1958

[Millions of dollars]

Source of support:	Amount
Total	$16.4
State	12.2
Appropriations	11.8
Specified revenue	.4
Federal	3.7
Grants-in-aid	1.0
Research grants	2.7
Private	.5

Source: Resources Analysis Section, Office of Research Planning, NIH, April 1959.

Background

These data are based upon a pilot study conducted under the sponsorship of the National Institutes of Health. This study is an integral part of a broader NIH program administered by the Resources Analysis Section, Office of Research Planning, to develop a continuing, more adequate picture of the present resources (manpower, funds, and facilities) and future requirements for medical and health-related research. The study was initiated as a first step in obtaining a better understanding of State expenditures and manpower for this vital activity. The task of data collection in each State was carried out by field staff of the Governments Division, Bureau of the Census.

Coverage

The pilot study covered all State agencies that supported or performed medical and health-related research, including State-controlled research institutes and public nonprofit corporations irrespective of whether such activities were supported by State funds. To avoid duplication with the National Science Foundation survey of research in all educational institutions, the study excluded State funds appropriated directly to State universities and subsequently expended for medical and health-related research.

Distribution by program area and agency

Of the $16.4 million, roughly 75 percent or $12 million, was reported for research in chronic diseases and in mental health. Within these program areas the major concentrations were found in neoplastic diseases, psychopharmacology, and social problem areas such as alcoholism, mental retardation, and sociopaths. As indicated below, about 10 percent of the research was performed by State agencies other than health or mental health. In the program areas of environmental health and special problem areas, including such categories as maternal and child health, and aging and physical rehabilitation, the contribution of these other agencies ranged from 35 to 40 percent of the total.

TABLE 2

DISTRIBUTION OF MEDICAL AND HEALTH-RELATED RESEARCH EXPENDITURES OF FIVE STATES, BY PROGRAM AREA AND ORGANIZATIONAL UNITS, 1958

Program area	Total amount (millions)	Percent distribution			
		Total percent	Health agency	Mental health agency	All other
Total	$16.4	100	55	35	10
I. Chronic diseases	5.8	100	98		2
II. Mental health	6.2	100	12	80	8
III. Infective and parasitic diseases	.5	100	93	2	5
IV. Dental health	.1	100	100		
V. Fundamental research	1.1	100	44	54	2
VI. Environmental health	.9	100	64		36
VII. Special problem areas	1.4	100	48	13	39
VIII. Morbidity and mortality	(1)	100	73	27	
IX. Administrative studies	.4	100	58	14	28

1 Less than $50,000.

Source: Resources Analysis Section, Office of Research Planning, NIH, April 1959.

Manpower

About 3,100 persons were engaged in the $16.4 million effort in the five States. Of this total, nearly half or about 1,400 represented the scientific staff; the remainder were supporting personnel such as nurses, technicians, and clerical staff. About one-half of the scientific staff had doctoral-level training (M.D., D.D.S., and Ph. D.). The distribution of the scientific staff by field of research was as follows: 40 percent—biological and preclinical sciences, 30 percent—clinical specialties, 10 percent—social sciences, 8 percent—clinical psychology, and the remaining 12 percent scattered among all other fields.

Limitations

The pilot study was not designed as a representative sample of the States. The data obtained vary rather widely from State to State. It is clear that the total for the five States does not provide any statistical basis for projecting a national total for all States. Similarly, the information collected does not furnish an adequate basis for comparison among these States without taking into account unique situations in each of the States.

Significance

The study substituted knowledge and experience for hypothesis and speculation. It demonstrated—

1. Broad participation of a variety of State agencies in medical and health-related research.
2. A solid base for State government support for such research.
3. The relative contribution and specific role of Federal funds in supporting such research.
4. Support of Government research by private organizations.

The findings indicate the relative emphasis given to broad program areas such as chronic diseases, mental health, environmental health, infectious and parasitic diseases; they establish benchmark data for the five States involved; and they raise questions as to how State research programs have grown, what determines program area emphasis, and what measures can be taken to stimulate research in "depressed" areas, e.g., radiological health.

Next steps

It is planned to conduct an extensive evaluation of the data submitted by one of the five participating States to—

1. verify the information submitted;
2. verify adequacy of definitions and classification;
3. appraise value of information for program planning at both Federal and State levels;
4. ascertain major changes that have occurred in the past 12 months and to determine what bearing these would have if the data were being reported for the current year;

5. obtain opinions of State officials that will assist in the review of the format and method of the pilot study in terms of extending it to additional States in 1960.

Following this evaluation, the findings of the study will be made generally available in published form.

B. MEDICAL RESEARCH BY CITY OF NEW YORK

Senator HUMPHREY. It is fitting that the Nation's largest city, a great medical metropolis in its own right, should have inaugurated a pioneering program in medical research.

A report of this program was conveyed by one of the leaders in the American public health movement, Dr. Leona Baumgartner, commissioner of health for the city of New York. Her letter and report follow:

COMMISSIONER OF HEALTH,
New York City, September 22, 1959.

DEAR SENATOR HUMPHREY: * * *

Actually, the city of New York has put some local tax funds into medical research of one kind or another for a great many years. Obviously, the medical schools have carried on research in the municipal hospitals attached to them. The department of health has a long tradition of research dating back to the turn of the century. It has been largely in the laboratory and epidemiological field. Some of the fundamental work in relation to control of infectious diseases was carried on here. There were famous names connected with the laboratories in the old days.

Then in the midthirties, largely in an effort to strengthen that work and to get around the constricting rules and regulations of the Civil Service Commission and the Budget Director, the Public Health Research Institute was set up. This is a separate nonprofit corporation, with which the city makes long-term contracts. At the present time the contract calls for $500,000 annually, though only $400,000 out of that has ever been budgeted. The current contract runs for 17 years. The research done by them has been entirely intramural research, largely in the field of immunology, bacteriology, virology, tuberculosis, and metabolism. I am enclosing a copy of their first 10-year report, as well as the last annual report.

Some 4 years ago, soon after I became commissioner of health, I became interested in this question of research in New York City. I myself was at one time in the laboratory research field, and I suppose I have never gotten over the habit of worrying about whether research people have the tools they need to work with. Obviously, with the responsibility of the health of 8 million New Yorkers, one also looks to see what knowledge is available to control the major killers and cripplers. Of the 10 leading causes of death, there are only 2 that we know enough about to even begin to effect some method of control. It is quite obvious that more research is needed. Moreover, we were beginning to push avidly at that time the use of isoniazid in the control of tuberculosis—a procedure which has been proved in part in our own city services. We were saving up to $2 million a year as a result of having put this discovery into widespread use.

I, therefore, went to the mayor and discussed with him the possibility of putting a larger amount into research and of making additional funds available to the medical schools. He was interested in the project and so we went about getting it started. Some of us were worried about the problem from the point of view of having the universities get almost all of their funds now from one source; namely, the Federal Government. A wider base of fiscal support seemed important. Moreover, it was interesting to discover that the six medical schools in the city had never gotten together to take a look at their own problems here. From time to time they met locally to look at the various kinds of research going on but there had never been any real examination of what was needed. Preliminary investigations indicated that perhaps it would be a good idea to get the leading lights together and see what their problems were. We, therefore,

held a 3-day conference in Westchester. A copy of the proceedings is enclosed. Incidentally, we never could have gotten the conference off the ground as we did without the help of Dr. Shannon and other people from the National Institutes of Health.

Following that conference, the board of estimate made available in July 1959 the first funds for the expanded research program. The mayor appointed a distinguished Health Research Council and announced the new program on September 6, 1958. A copy of the opening program, the mayor's statement, members of the council, etc., are also attached. The council is a distinguished one, including all of the major research figures in the city as well as some of the leading business and civic leaders. The council set up only very broad policies and asked an executive committee to go ahead with further planning. Because of the great need for help in the municipal hospitals attached to universities, the first priority was given to working out their needs with them. The situation has, of course, changed somewhat from the time that the program was first envisaged because of the larger amounts available from the National Institutes of Health. However, it has been of great interest to see that we have found areas of support in which there was desperate need and in which there is very real hope of getting something done, which had never been supported by outside funds in any way. Progress has been somewhat slowed, too, because a full-time director has not been found. However, the committee on grants and investigatorships has started now to operate and is presenting in late September its first recommendations to the council. The council in turn will present this material to the board of estimate which will approve the actual expenditure of funds. The past year has been given over largely to working out administrative details, finding a director, and investigating local needs. The program seems to have started slowly but soundly, and has certainly a very excellent group of grants to recommend at the present time.

I don't know if this is the kind of information in which you are interested. In any event let us know what else you want and we shall be very happy to help you in any way.

Incidentally, I had a fascinating time with Dr. Markov, Mr. Khrushchev's personal physician, Dr. Butrov, and another physician who accompanied them. They are extremely keen on international exchanges. My own experience in Russia makes me keen on them, too, but I do hope that we will be making them on a different basis than the short 1-month grant tours that have been supported in the main so far.

Sincerely yours,

LEONA BAUMGARTNER, M.D., *Commissioner of Health.*

HEALTH RESEARCH COUNCIL OF THE CITY OF NEW YORK

MAY 18, 1959.

To: Deans of medical schools and schools of public health, medical superintendents of municipal hospitals.

Subject: Research programs approved by the health research council for its first year of operation.

The Health Research Council has approved two programs of support for medical research in New York City during its first year of operation. These programs, which are described in the enclosed outline, provide for—

(1) Basic support of university-attached research units in municipal hospitals;

(2) Support of full-time investigators in university-attached services in municipal hospitals.

The council wishes to announce that it is prepared to accept applications for consideration under these two programs.

Application forms will be available on request on or about June 1, 1959.

The deadline for receipt of applications is June 30, 1959.

Dr. Saul J. Farber, of the Department of Medicine, New York University College of Medicine, is serving pro tem as executive secretary. Dr. Farber may be in touch with you, or if you wish to reach him you may call him at Oregon 9–3200, extension 316, or Worth 4–3800, extension 792.

COLIN M. MACLEOD, M.D., *Secretary.*

HEALTH RESEARCH COUNCIL OF THE CITY OF NEW YORK—DESCRIPTION OF PROGRAMS PROPOSED FOR THE FIRST YEAR

MAY 16, 1959.

The Health Research Council has approved two programs which it believes deserve the highest priority based on need, opportunity, and the great contribution both can make to the furtherance of health research and improvement of patient care in New York City. These programs are—

(1) Basic support of clinical research units in university-attached services in municipal hospitals;

(2) Support of full-time investigators in university-attached services in municipal hospitals.

During the first year the council recommends that both of these programs should apply to university-attached services in municipal hospitals. This recommendation should not be construed as meaning that other hospitals and research institutions do not have similar needs. It seems appropriate, however, that with the limited funds available at present, the interests of the health research council should be focused on municipal institutions where both needs and opportunities are greatest. As experience develops and resources increase, it is anticipated that similar support can be considered for other institutions.

Each of the medical schools in the city carries on extensive programs of research and education in one or more municipal hospitals and is responsible for medical care of large numbers of patients in them. The Health Research Council believes that the suggested programs can make a telling contribution to these activities.

In addition, the Health Research Council believes that these programs will make a definite contribution to the quality of patient care in the city hospitals. The council is not, of course, in a position to undertake a general program to improve the day-to-day care of patients in the city hospitals. The presence of well-staffed clinical investigation units in the hospitals, however, has a highly beneficial influence on medical care not only for the patients in the care of the research units themselves but indirectly throughout the hospitals. The highly trained personnel in the research units are constantly available for advice and consultation with interns, residents, and other staff members.

(1) *Basic support of research units in university-attached services in municipal hospitals.* Research programs in municipal hospitals in New York City can benefit from additional support. The city provides the space and pays the salaries of nurses and ancillary personnel essential for the care of patients. Likewise it provides the salaries for technicians and other personnel who work in the service laboratories of the hospitals in activities directly related to patient care.

The Health Research Council has, therefore, approved the policy of making grants or entering into contractual arrangements to supplement the basic services for clinical investigation, and in addition to provide for the improvement of facilities that may be necessary for efficient operations.

The Health Research Council recommends grants for this purpose to research units operating in city hospitals should be based upon the scientific competence of the research personnel and upon due assessment of need in each instance.

The Health Research Council recommends that such grants or contracts should afford reasonable latitude to the investigators in the expenditure of funds and should be financed in such a way that support is reasonably assured for at least 3 to 5 years.

The Health Research Council recommends that funds should not be used for the construction of new research facilities.

(2) *Support of full-time investigators in university-attached services in municipal hospitals.* The greatest weakness in the development and maintenance of clinical research in New York City, as elsewhere in the United States, is the inability of medical schools and other institutions to provide adequate salaries for young investigators associated with university services who wish to make their career in research. At present, clinical investigators in the city hospitals are supported primarily by the educational and research institutions that have affiliations with these hospitals. Adequate funds from other sources are available for training at the fellowship level and for research projects. Stable funds are seriously lacking, however, for salaries of research workers of proved ability who have completed fellowship training.

The Health Research Council recommends that initially the council give highest priority to the support of full-time investigators working in city hos-

pitals and associated with university services. At a later date the council plans to direct its attention to the support of other research activities.

Noting that the participation of the universities is of crucial importance, the Health Research Council recommends that at the beginning partial support rather than full stipends should be awarded. The council reserves for future consideration the possibility of providing full stipends, recognizing that each case must be decided on its own merit and that to restrict support to a partial stipend might be unnecessarily confining.

The Health Research Council recommends that the following principles apply in selecting investigators who will be provided with support:

(*a*) Support should go to promising investigators who have completed fellowship or equivalent training and who are pointing toward a career in research and teaching (so-called "intermediate" investigators). Support should not be at the fellowship level since the number of fellowships available from other sources appears to be adequate at present. At a later date, however, the council has agreed that the support of senior investigators (research professorships) should be considered.

(*b*) Awards should be made only on the basis of the merit of the individual and should not be awarded on an institutional basis. No restriction should be placed on the number of persons from a given institution that may apply.

(*c*) Applications must have the official approval of the institution of whose staff the investigator is a member.

(*d*) Payment should be made by the city to the university and not to the individual investigator. However, such awards are not transferable by the university; if for any reason the employment of a particular person is terminated (for example, upon his leaving to work elsewhere), the award or grant cannot be transferred automatically by the university to the person who replaces him.

(*e*) Continuity of support on a long-term basis is considered essential.

C. ACTIVITY OF STATE AND CITY DEPARTMENTS OF HEALTH IN EXCHANGE PROGRAMS

Senator HUMPHREY. An expert source for contributions to international health has been the department of health in the various States.

From these departments have come many outstanding physicians, nurses, hospital administrators, researchers, sanitary engineers and others who have served international health through U.S. Government, intergovernmental and indirect means.

The subcommittee contacted the various departments of health and reprints now a few of their many helpful replies.

I may say that, as a Minnesotan, I am especially proud of the many distinguished physicians and other healing arts personnel from the State and city departments of health in my own State who have collaborated in international health programs.

A few representative letters follow:

DEPARTMENT OF PUBLIC HEALTH,
Berkeley, Calif., April 9, 1959.

MY DEAR SENATOR: I am sure that we cannot offer you any suggestions for new ways to further international medical cooperation, but it may be helpful to cite some of our California activities for that purpose. These are not new, but they may not be widespread in practice elsewhere.

We take seriously our international responsibilities in public health and preventive medicine. Qualified personnel are being sent continuously from the staffs of our State health department and from local California health departments on temporary foreign assignments with the U.S. Government.

This has been made possible by legislative action which, I understand, only a few States have taken. Section 1228.5 of the California government code provides:

"The State personnel board may grant to any State employee included within the State civil service, or the governing board of any local agency may grant to any employee of such local governmental agency, upon request, a leave of absence without pay of not to exceed 2 years to accept a temporary position with the U.S. Government for service in a foreign country in a technical cooperation program, and upon termination of such service, and for 3 months thereafter, such employee shall have the right to be restored to his former position."

We maintain close relationships with the Canadian and Mexican border public health departments and associations with free exchange of information and joint meetings. The United States-Mexico Border Public Health Association is a unique example of international cooperation that might well be followed elsewhere. A copy of this year's annual meeting program is enclosed.

A steady stream of foreign professional public health workers come to our department for both short and comparatively long-term visits. Suitable observation tours, orientation periods, laboratory experience, field trips, and consultations are arranged to meet each visitor's particular needs. Part of this is in cooperation with the University of California School of Public Health. We work closely with them in their training of foreign students doing graduate work in public health and preventive medicine.

Through our department library service our staff members have access to 101 publications from 37 countries. These include medical and public health journals, experimental as well as clinical, and periodical publications of governmental agencies dealing with research and practice in public health and preventive medicine. We also maintain a limited translation service.

We exchange department periodicals and publications with governmental agencies in many countries. At the present time our department's official semimonthly periodical, California's Health, goes regularly to 142 professional public health workers in 45 countries. These names are placed on our mailing list only at the request of each indivdual and are kept there only by annual renewal of the request.

I am enclosing a number of marked tear sheets from California's Health to give you more details about most of the points mentioned.

* * * * * * *

Yours very truly,

(Mrs.) Ann Wilson Haynes,
Chief, Bureau of Health Education.

Our Foreign Visitors From 1947 Through 1956[2]

By George T. Palmer, Dr. P.H., consultant in public health training and administration, California State Department of Public Health

"How do you do, Dr. Srivamacharyyulu? I want you to meet Dr. Ou, from Taiwan. Dr. Srivamacharyyulu is from India."

Some of the foreign names are strange to us. Some are very long, some very short. Regardless of the initial difficulty in pronunciation, the opportunity to meet these professional public health people from all parts of the world has been a delightful and stimulating experience. We are deeply indebted to the World Health Organization, the International Cooperation Administration, the U.S. Public Health Service, the U.S. Children's Bureau, the American-Korean Foundation, The Rockefeller Foundation, the American College of Surgeons, and other groups for thus indicating a confidence that California's health departments and other related facilities are of a caliber to warrant this attention.

LANGUAGE BARRIER OVERCOME

For the most part, our visitors speak and understand English very well. In a few instances the visiting groups have been accompanied by able interpreters. While lacking a knowledge of the languages of all our visitors, the reception office has been able to call on any one of 81 people in the State department of public health who altogether understand 16 different languages.

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[2] Reprinted from "California's Health," Apr. 15, 1957, published by California State Department of Public Health.

It was interesting to watch the astonishment and the smiles on the faces of a group from Okinawa on being welcomed in the reception office by Mrs. Jeanne Yamamoto, of the accounting section, who spoke to them in Japanese. We have just been able to return a lost letter to Israel with the writer's name and address spelled out in Hebrew.

OVER 500 VISITORS

During the 10-year period from January 1947 through December 1956, we have been privileged to receive some 538 foreign visitors. Early records are somewhat incomplete and it is possible that another 10 or 15 should be added to the list.

Our visitors came from 61 different countries, spread over the world, including Afghanistan, Nepal, the Belgian Congo, New Zealand, Egypt, Haiti, Indonesia, Turkey, Yugoslavia, Uruguay, and elsewhere.

The eight countries with the greatest number of visitors were:

Philippines	95	Taiwan	25
Japan	55	Egypt	23
China	30	Korea	22
Germany	30	India	21

The annual number of visitors has varied from year to year, with the peak coming in 1956. The numbers, by year, are:

1947	11	1951	53	1955	75
1948	38	1952	43	1956	112
1949	41	1953	66		
1950	44	1954	55		

The diversified interests of visitors have reached out to practically all units in both the State and local health departments. The time spent in California has ranged from part of a day to 5 months, with the majority of visits limited to from 1 to 3 weeks.

The service to visitors begins usually with a request from the sponsoring agency. The U.S. Public Health Service has referred the greatest number.

PROFESSIONAL INTERESTS MET

How can we best serve our visitors? This is hard to answer. As it is, they talk with people within their fields of interest and go into the field to see things in action—a water-treatment plant, a sewage-disposal system, mosquito-abatement district, sanitarians and nurses in their field work, physicians in child health centers, hospitals, food and drug and canning operations, statistical activities, laboratories, financial and administrative procedures, classes at the school of public health, and meetings of citizen groups to discuss public health matters.

We plan to serve our visitor's interests. We begin by discussing the subject with the visitor at the start. What problems does he face when he returns home? What has he already observed in his visits to the United States? We then offer him possible experiences in California and make arrangements with State and local health departments, the university, and other agencies to best meet his needs.

What ideas does the visitor take home with him? That is difficult to say. We do know that they evidence appreciation, verbally and in the many, many profusely friendly letters which we receive. We endeavor to display our wares and our ideas, and by questioning learn something of their problems and their operations.

The utilization of what is seen and heard here is a matter that the visitor has to work out on his return home.

We cannot refrain from mentioning a deep sense of respect for the painstaking labors of our Government agencies here and abroad. Especially are we most thankful to the training office of the U.S. Public Health Service in Washington and the regional office of the Service, here in San Francisco, for their unfailing courtesy and assistance in making the visitor's program fruitful.

PERSONAL SERVICES

The problems faced in the reception office are many, ranging from discussion with the visitor as to program, appointments with the State health units and local health departments concerned, as well as the school of public health, other

State departments, hospitals, hotel reservations, and the like, even including Hollywood—where we had little success.

Mixed in with the above are changes in time of arrival and departure, unexpected absence of people from their office, all necessitating changes in schedule, and communication with the people concerned. Sometimes checks from Washington do not arrive when expected and a hurry-up phone call or telegram or letter has to be sent. Mail is received, delivered, and forwarded.

Over the years many checks have been endorsed, a few checks have been lost for a time, and loans of money have had to be made to help out in a tight spot, but there have been no casualties, and reimbursements have been made promptly in every instance.

We have not made a special point of entertainment, but numerous invitations to dinners and evening meetings have been received. The International Hospitality Center in San Francisco, with their many volunteer car drivers, have assisted splendidly in showing visitors points of interest outside the field of public health.

EXPRESSION OF APPRECIATION

A further expression of appreciation is due the local health officers of California and their staffs, and the numerous members of the staff of the State health department for their fine cooperation and willingness to devote their time and attention on repeated occasions to our visitors from abroad in the true sense of international cooperation.

We have enjoyed seeing the writeups and pictures of visitors in local newspapers. We are sure that the visitors like this attention. Such accounts, likewise, give insight to local readers of our friendly international relations.

COMMENTS FROM OUR VISITORS

As a parting note may we quote from the letters of two visitors:

"I have learned so many professional things in the States, but above all received a lesson in humanity and generosity, of which our good old Europe—which is still so deeply attached to its egotisms and particularisms—should gain a lot."

and—

"I was proud of the fact that I was able to get to know such people as you are. I was delighted with your department and the Americans in general. The thought about you will be dear to me in the future always."

Visitors to the State health department since September 1956 are listed below by country.

ASIA

Iraq

Dr. Mohmoud M. Ibrahim, Deputy General of Health in charge of preventive medicine, Baghdad.

Japan

Sachio Maito, technical officer, Water Works and Sewage Section of the Environmental Sanitation Division, Public Sanitation Bureau, Ministry of Health and Welfare, Tokyo.

Korea

Dr. Chong Whee Chun, professor of communicable diseases, Seoul National University, College of Medicine, Seoul.

Dr. Wun Sung Whang, Chief, Medical Supply Section, Bureau of Pharmaceutical Affairs, Ministry of Health, Seoul.

Nepal

Gahendra B. Rajbhandary, Deputy Secretary of the Ministry of Health, Lalitpur, Patan.

Okinawa

Miss Taeko Kinjo, Chief Public Health Nurse, Public Health Section, Department of Social Affairs, Ogimi.

Miss Wobuko Madanbashi, Chief Nurse, Social Affairs Department, Naha.

Miss Hiromi Oshiro, Instructor, Okinawa Midwifery School, Yabu.

Philippines

Mr. Gonzalo A. Bantugan, X-ray technician and hospital engineer, Department of Health, Manila.

Mr. Enrique L. Marcelo, X-ray technician and hospital engineer, Department of Health, Manila.

Taiwan

Dr. Wen-pin Chang, lecturer, Department of Public Health, National Taiwan University, Taipeh.

Mr. Yung Dah-Fong, Director, Institute of Environment Sanitation, Taiwan Provincial Government, Taipeh.

Dr. Czau Siung Yang, associate professor, College of Medicine, National Taiwan University, Taipeh.

EUROPE

Denmark

Dr. E. Jeul Henningsen, Deputy Director General, National Health Service, Copenhagen.

Dr. Mogens Faber, special medical adviser on the Danish Atomic Energy Commission, Copenhagen.

Germany

Dr. Rolf Herbert Heinrich Langmann, health officer, City of Mulheim, Ruhr.

Netherlands

Dr. George Cath, Director General of Green Cross, Amsterdam.

Norway

Dr. Aage Haagenruud, Deputy Chief Medical Officer, Board of Health, Ministry of Social Affairs, Directorate of Health, Oslo.

SOUTH AMERICA

Argentina

Dr. Luis Siri, Director General, Department of Foreign Sanitation Relations, Ministry of Welfare and Public Health, Buenos Aires.

Brazil

Dr. Juoquin Rossini, chief of emergency hospitals, Sao Paulo.

OTHER

New Zealand

Dr. Gordon L. L. Dempster, director of tuberculosis, New Zealand Department of Health, Wellington.

FLORIDA STATE BOARD OF HEALTH,
Jacksonville, May 8, 1959.

MY DEAR SENATOR HUMPHREY: * * *

Referring to the specific question in your letter of April 14, 1959, may I observe that one of the very valuable contributions to this is the opportunity afforded students, physicians, and scientists to visit in this country, to study at our universities, and to observe and participate in work in our hospitals and health departments. Thus, scientists and physicians throughout the world are acquiring an understanding and knowledge of practices in this country. Most of those who have enjoyed and benefited from this experience, undoubtedly will be ready to cooperate actively with representatives from this country in international health problems.

It is my opinion also that for those who wish to become familiar with work in other lands, foreign medical literature is available either in the original or in translation. It is acknowledged that Americans as a whole do not become proficient in foreign languages but there is certainly the opportunity to examine the results of medical investigation in other countries.

There is, however, it seems to me an important area of weakness. Few physicians and scientists in this country have the opportunity to observe health problems in other countries, to see the limited resources often available for scientific work, and to come to know foreign scientists in their own countries. It is recognized that a few teachers and a few investigators have been privileged to

have this experience. However, for future cooperation among medical researchers of the world it is believed that there should be more frequent opportunity for our students, physicians, and scientists to study, teach and engage in research in other countries, just as foreign students, physicians, and scientists come to this country. The problems of the underprivileged countries differ so markedly from those of this country that they cannot be fully appreciated unless seen.

It would be of value also to increase the number of small group conferences such as those of the advisory groups participating in the work of the World Health Organization. Such group consultations would lose their value if the group increased in size, since inevitably representatives of the various countries would associate together. However, if there is some specific problem demanding the attention of 10 to 20 physicians and scientists drawn from approximately as many countries, there would be a valuable exchange, a rich educational experience, and many of the recommendations of such groups would have substantial merit.

While many activities would contribute to the development of the cooperation desired, still it is believed that nothing will surpass in importance the exchange when "foreign" physicians and scientists meet other physicians and scientists in their home lands and become familiar with the differing problems of other countries.

Very sincerely,

WILSON T. SOWDER, M.D., *State Health Officer.*

STATE DEPARTMENT OF HEALTH,
Trenton, New Jersey, July 22, 1960.

DEAR SENATOR HUMPHREY: The New Jersey State Department of Health has read with deep interest the various documents that you and your subcommittee have made available to us on your work in the field of medical care and international cooperation.

We are certainly looking forward to part II known as the appendix volume to supplement the part I which we now have on hand.

Aside from the fact that human life is at stake, there is no aspect of international relations more important to the American people than to bring to the undeveloped areas of the world the medical skill and knowledge that we have in the United States and the countries of our allies. In the struggle for men's minds the practical demonstration of democracy through better health can and should play an important role. We have always urged that the United States take an active part in the world health program and if as the result of the work of your committee, we can get more funds for research and to coordinate some of the efforts in the research field for the benefit of all mankind, you and your committee will have developed for yourselves a monument that will live long after the committee is disbanded.

We certainly urge the Senate to continue the work of the international health study and to take steps toward carrying out your recommendations.

Very cordially yours,

WALDO R. MCNUTT, M.P.H., *Assistant to the Commissioner.*

INDEX APPEARS AT END OF PART III

Senator HUMPHREY. Attention is again invited to the fact that part III contains at its conclusion a combined index for parts II and III.

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